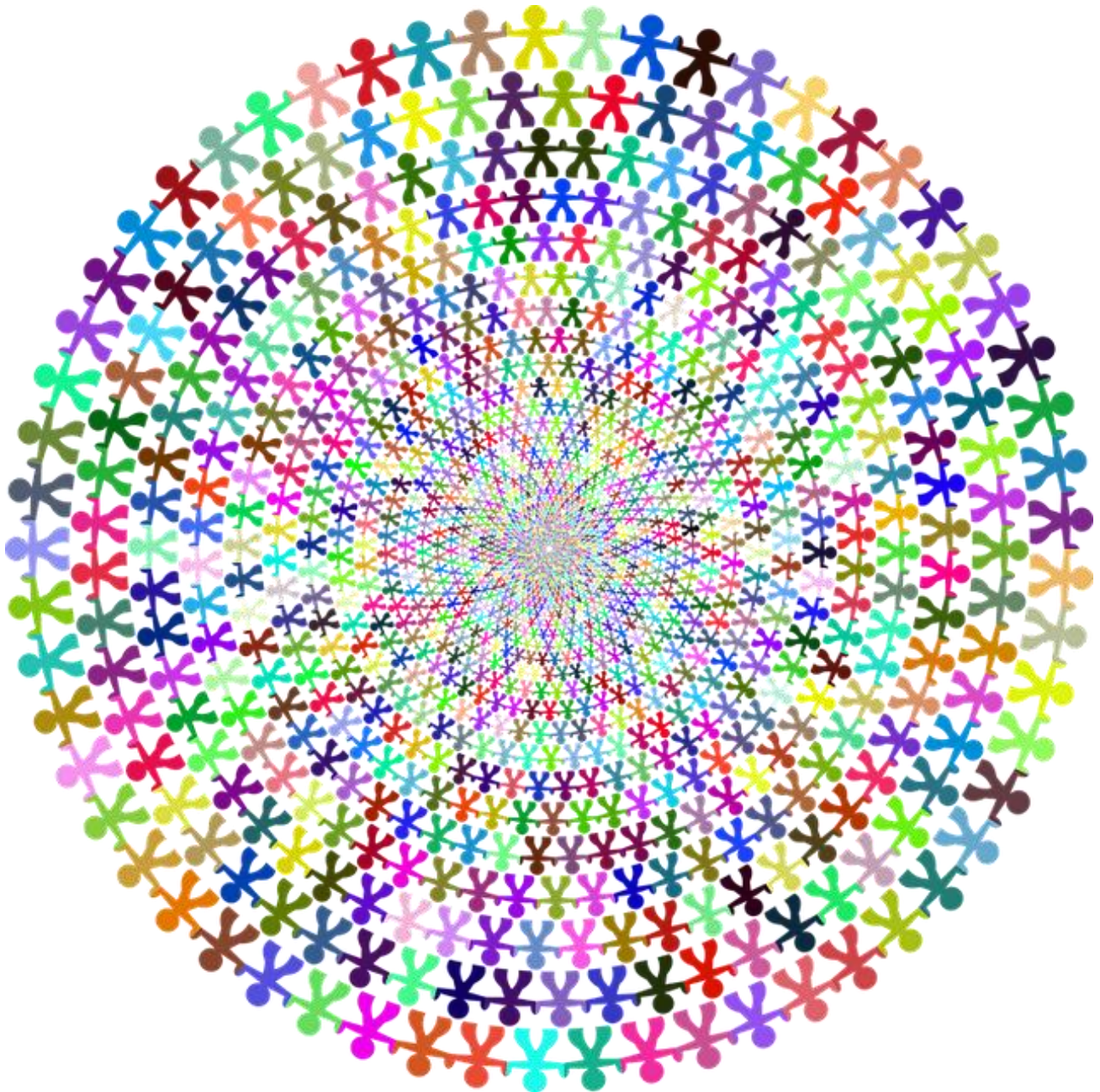


Ferenc Arató – Aranka Varga

A Handbook for learning together – an introduction to co-operative learning



University of Pécs
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Translation: Róbert Marcz and Berta Bakonyi

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To the reader

This handbook is intended for teachers teaching in primary and secondary schools, as well as for teacher trainees. In our opinion, co-operative learning may be of interest for society since it defines the outlines and practical system of such a general human improvement and human management paradigm that can be applied effectively in all forms of social co-existence.

However, this handbook primarily summarises the important and essential knowledge, theoretical and practical fundamentals and attitudes for teachers or future educators, without which it is difficult to grasp the essence of co-operative learning.

Our book is intended to be used as a manual. It primarily serves for the understanding of the complex rules of co-operative learning. The rules, which determine the most important classroom, practical and behaviour forms, owing to which the organisation and process of learning will increasingly be built on true co-operation. Our handbook helps the reader increasingly understand the essence, the basic principles, techniques and attitudes of co-operative learning. Comprehension is facilitated by argumentation referring to practice, theoretical reflection, a lot of **examples, and actual co-operative structures described step by step**. It can be read from chapter to chapter, however, it may seem a little “too much” that way. It is more expedient to read a chapter again and again, and to compare it to the practice to be achieved from time to time, especially when something does not work on first attempt.

The present introduction helps understanding even for those that have not tried co-operative learning yet. However, theoretical knowledge is only the first step in comprehension. During practical experiments it is necessary to return to theoretical basics and to open this book again and again, because the most essential points become outlined in practice. Important details which are not quintessential for convincing any one to try the practice, later may become significant in issues emerging during practice. However, these only can be found in the book if you take it in your hand again and again.

Since this book has two authors, and during learning together we have been learning from each other as well, we use the first person plural in the main body of the book. The texts printed in bold help with highlighting the most significant **aspects, terms and key points** of the respective parts. ***So if someone wishes to check a section important form them***, following the highlights will facilitate their job. They accent the most important key terms and correlations, therefore a note can be taken easily with their help. We would also be happy if the readers could discover further relations following their own interpretations in the book as well as in their own co-operative practice.

The examples in italic aimed at facilitating comprehension are inserted in the main body of the text so that they could mutually reflect on each other. The examples are written in first person singular; partly because they did not always come from our shared experience, and partly in order to help the reader identify with the presented **situations**.

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We wish to thank Katalin Forray R., Ildikó Bárdossy, Szilvia Makai, Terézia Radics Szerencsés, Csaba Pintér and the teachers and students having participated our courses and university seminars, heaving learned together with us, for their valuable advice on this book.

If pedagogy is art, then for the educator co-operative learning is like language for the poet, a paintbrush for the artist, a chisel and hammer for the sculptor: a tool for the free, autonomous and pure practice of the art. Co-operative learning reveals the secrets of learning together and sharing knowledge, and its practice makes a master in the same way as poets are born by language, as the paintbrush leads the artist's hand, as the chisel reveals a masterpiece from the rock.

If pedagogy is art, then in co-operative learning, we educators partake in the playful creative freedom as much as slave-like diligence.

And if pedagogy is not art, then it is time for us to make it an art while learning together!

Introduction

The centuries and millennia of education include countless pedagogical views and practices in which the ways of obtaining knowledge individually or in community are highlighted alternately. The cultural, societal or political-ideological needs of the respective societies or social groups can be found in their backgrounds.

The development of democratic societies served as a *raison d'être* for the new pedagogical schools emerging in the second part of the 19th century. At the same time, wide-ranging schooling and the expansion of education in the 20th century are the facts which resulted in the social demand for the democratisation of the educational system, that is, its becoming such a tool that is able to serve as an opportunity for mobility for the members of society, regardless of their status. Sociological, social-psychological, education-sociological theories and researches provide arguments for or against its feasibility. And among theories and studies there is the daily practice of education; pupils with their successes or failures, young and old teachers with their traditional ways or innovative intentions, and families from various backgrounds, who all want the same from the school: to act as carefully as possible in the process of creating successful adults. Co-operative learning represents a pedagogical view, a paradigm – together with the practical tools – that complies with all three criteria of quality education outlined above. Thoughtfulness, as an important aspect of developing a quality educational environment, requires the school to utilise existing material and human resources as efficiently as possible during the organisation of education and the process of learning, the output to show *de facto* results, and all these must prevail in case of all students, that is, the school also must be characterised by equity. In our experience the basic principles of co-operation are regarded as obvious and accepted by every one, moreover, everyone strives to manifest these in their daily pedagogical practice in the name of some kind of democratism. However, intention is not enough in itself when we compare our daily practice to the efficiency, effectiveness and equity of a really co-operative learning practice.

Co-operative experience, an efficient course on co-operative learning or observing a co-operative exercise introducing equity can help a lot in broadening our views.

However, the greatest task is to change our ways of thinking, to reignite our trust and confidence in children, the rediscovery of our *joie de vivre* and the joys of curiosity, the experience of our dormant childlike creativity.

The *Handbook for learning together* is primarily based on our own practical experience as teachers and teacher trainers; for instance the specific approaches to fundamental principles, the elaboration on the underlying democratic principles, the connection of competency models to co-operative learning, and the sections on roles and behavioural patterns. All these have emphatically been formed during the interpretation of dialogues conducted with Hungarian colleagues, working together, taking the instructions of relevant literature further and based on our own well-tried co-operative tools. In Hungarian discourse the terms “co-operative methods” and “co-operative techniques” also are in use. While the latter one is not used in international literature, and the term ‘method’ gives a methodological emphasis to the approach, we wish to draw attention to the paradigm-shifting approach of co-operative learning by emphasising co-operative structures of learning. A new paradigm has been born, the co-operative paradigm of pedagogy¹, which transforms pedagogy structurally, that is, at the level of organisation and everyday classroom behaviour. It changes the forms of organising learning and education radically, and it offers concrete attitudes, feasibly realisable principles and, of course, applicable organisational-methodological patterns for this change. We call these methodological patterns co-operative structures. In American literature, Kagan, the Johnsons and Elizabeth Cohen also speak of ‘co-operative structures’ instead of ‘co-operative methods’. However, we wanted to keep the already widespread term ‘co-operative methods’, and, refining its meaning, to converge the two notions by alternately using them as interchangeable synonyms. Thus, we use the term ‘co-operative structures’ as an equivalent synonym of ‘co-operative methods’ in this book. It means that only those co-operative methods are regarded as co-operative structures, which comply with fundamental co-operative principles. From this aspect it does not

¹ ARATÓ, Ferenc (2014): On Deconstruction of Education. In *Hungarian Educational Research Journal* 4(4)

matter if its users call their practice a method or a structure; the question is whether the co-operative principles prevail in it. By joining the two terms our aim was to provide stable points of orientation for the users of this handbook as for which methodological/structural solutions can be considered really co-operative in various practices and literature. It is also important in this double term to clarify that the co-operative paradigm not only means a methodological renewal (although it certainly does in a lot of fields) but a structural turn in organising learning and teaching. A turn, on the account of which we must reconsider our notions about knowledge, learning and teaching. We present the basics of this new paradigm in our handbook.

We have written such a book that helps go through the frameworks and approaches that make us aware of how to co-operate and are able to shift our practice towards an experience of efficiency, effectiveness and equity in co-operative learning.

It is more efficient, because it grants participation in learning processes for most participants during the same period. And also because this guarantee does not mean passive listening but active, or even interactive, co-operative forms of learning activating cognitive schemes chosen from a wider repertoire. That is, via the principles and tools of learning together it strongly focuses on maximally exploiting the resources of participants besides those of organising and performing acquisition.

Effectiveness is set in a new light from the perspective of co-operating learning. Stress is not on the product of group-work or on its quality, but on the quality of the individual's development. In co-operative learning groups work with the aim of achieving their goals in a way that contributes to each member's individual improvement, that is, members of the group achieve their individual goals working together. Thus this form of organising learning is more effective, since it allows for the development of individual talents, while it also provides deeply ingrained knowledge. Participants in learning together approach tasks with strategic problem-solving skills, that is, they are able to approach a problem from several aspects, involving others, outlining alternatives and planning the ways leading to solutions. Thanks to co-operative learning, participating pupils improve their personal and social skills in consistence and concordance with their own learning skills, in a customised ways. That is to say, "nurturing" is not separated from "education", but is performed for the sake of learning. Such personal skills are developed and improved consciously (such as a sense of purpose, conscience, self-confidence, etc.) which enable to individuals to increasingly be aware of themselves, both mentally-emotionally and in the terms of cognition and learning. Social skills contribute to the development of personal skills as well, since in co-operative learning there is an ongoing publicness of contemporaries, which provides reflection for each pupil on their activities, states and skills. The co-operation for the sake of learning is in the centre of the development of social skills. Participants reflect on their co-operative and other skills in the light of academic effectiveness explicitly, that is, they observe what kind of social skills and co-operation forms need to be improved in order for their individual achievements to improve. The versatile manifestation of achievements also becomes natural with the help of – micro-group or large-group – publicness continuously present during the process of learning, and also in the light of self, group or teacher feedback.

Co-operative learning is equitable, because it indeed is capable of providing every participant with the fundamental democratic right of equal access to knowledge with the help of its basic principles, attitudes, competence models, micro-group structure, co-operative roles and tools. That is to say, it does not only create the frameworks of equal opportunities, like e.g. the state brings knowledge in close proximity to everyone by general compulsory education, but it truly creates equal opportunities by transforming the practice of learning management.

Groupwork is often mentioned in connection with co-operative learning. In the models of co-operative learning micro-groups are developed, and learning mainly happens in these micro-groups. Micro-groups are defined as groups of two to six people in co-operative literature. In our handbook we alternately use the terms 'micro-group' and 'small group', both of which cover these 2-6 units. By 'large group' we mean a larger community of pupils learning together (e.g. a standard school class). Henceforth we speak of **'co-operation' when the activity complies with the co-operative principles**. That is, in comparison with the general term of collaboration, we speak of a concrete and realisable, democratic co-operation supported by practical principles.

Chapter 1

THE BASIC PRINCIPLES OF CO-OPERATIVE LEARNING

1.1. What makes the structure of learning co-operative?

In Hungarian pedagogical discourse usually the terms ‘co-operative learning’ or ‘co-operative techniques’ are used. However, the term ‘co-operative techniques’ is unable to grasp the significant aspect that co-operative learning is not merely a technique in the methodological sense. The term used by American authors, ‘co-operative learning’ is more telling than children simply learning together. The practice and group structure of learning and education are really reorganised in order to promote co-operation, that is, structural safeguards are built in the process. On the one hand, such circumstances and activities are created that enable each partaking student to get involved in learning dialogues directly and personally. On the other hand, conditions of activities are created that encourage co-operation among participants. Maybe that is why it is grounded to use the term ‘co-operative learning’ if we want to grasp the essence of it. The fact that educators achieve learning together by organising learning is in the focus. In other words, *they make decisions mainly on issues of organisation*: to use systems and structures which develop true co-operation between participants learning together in a bigger community – regardless of their age –, and by way of which participants obtain a more thorough academic-professional knowledge, not to mention the development of their personal and social skills.

According to the literature, therefore it can be stated that **when we use the term ‘co-operative learning’, we mean models of co-operative learning structures**. That is, such models that promote learning together for the sake of learning and by transforming the ways of organising learning. **The structural principles that need to be integrated in the organisation of the learning and teaching process are called co-operative principles.**

Based on Spencer Kagan’s works², we speak of co-operative principles in connection with co-operative learning. However, below we introduce and take further not only the basic Kaganian principles, but further fundamental ones as well with which we complemented the Kaganian system of co-operative principles. We attempted to conceive further fundamental conditions reflected by the two other great American schools – the Aronsonian³ and the co-operative schools connected to the Johnson brothers⁴ – and by our own experience in the form of basic principles. That is how a system of co-operative principles been set up, in correspondence with previous co-operative approaches, but taken further in accordance with domestic experience. We think that this complex, yet simple system makes the *characteristics and structural elements* of the co-operative pedagogical paradigm comprehensible for Hungarian educators, even in practice.

1.2. The paradigmatic nature of co-operative learning

In academic discourse the term ‘paradigm’ refers to scientific approaches that shed new light on existing scientific issues, raise excitingly new questions through easily graspable examples and/or rules, and offer comprehensible solutions based on the new system. The structural approach of co-operative learning – built on fundamental principles – outlined above carries such paradigmatic features in the fields of pedagogical science and practice. A salient novelty is that it does not offer methodological solutions in relation with individual subjects, but it observes how the process of learning is organised, in other words, **it observes and alters the structures of learning**.

Another paradigmatic trait is that it approaches correlations which have been neglected for

² KAGAN, Spencer – KAGAN, Miguel (2009): *Kagan Cooperative Learning*. San Clemente: Kagan Publishing.

³ ARONSON, Elliot (2007): *The Social Animal*. (Tenth, revised edition) New York: Worth Publishers.

⁴ JOHNSON, Roger T. – JOHNSON, David W. (1999): *Learning Together and Alone*. Allyn and Bacon, Massachusetts.

centuries: the correlations of the method of organising the learning process. During the past sixty years, it has been found during social-psychological and sociological studies that the goal system and organisation of shared activities has a determining impact on the development of personal and interpersonal relations, and thus the effectiveness of the shared activity – in our case, that of learning. Thus, if we change the frameworks of learning, then the community created during learning also will change, as well as the personal and social maturity and academic achievement of the students growing up in that community. That is to say, co-operative learning does not merely abolish traditional educational frameworks, but offers solutions in place of them that lead to a more efficient, effective and – since it covers each and every student – equitable pedagogical practice. The basic principles help in the elaboration of these solutions. Co-operation among participants is generated by methods following the fundamental principles.

The model of learning structures based on co-operative principles allows for the extendibility of the co-operative paradigm. The system operates not only in the classroom, but at school level as well. (The Johnson brothers published a book about the experience of co-operation at the level of pedagogists, technical staff, social and professional partner structures of the school as early as the nineties.) Co-operation can be found at the level of system-developing as well. We have conducted researches on the latter, and on extensibility – how co-operative structures can be created on the level of public education⁵.

If we attempt to distinguish between co-operative learning and other small-group learning activities, in short we can say that every form of learning is co-operative if the basic principles detailed below are present in them. At the same time, we cannot consider –even small-group – practice co-operative if not all co-operative principles prevail in them.

1.3. Flexible and open structures built on co-operation

- *Focus on the way of organising learning and think in co-operative structures.*
- *Let each basic principle prevail in the structure you have developed; make sure that everyone gets attention.*
- *The structures must be flexible enough so that each student can obtain content which are suitable for them personally and tasks which improve them.*

The way – structure – of organising learning is a crucial point

The first basic principle grasps one of the determining attitudes of co-operative learning: be flexible in planning and executing, but attain improvement in co-operation and academic achievement with the help of structures, by the way you organise learning.

Teachers applying co-operative learning must make decisions. They must resolve to **focus on flexibly open structures** – granted by the basic principles –, **and set the development of such structures as goals**.

This approach sets for pedagogists that for the creation and assurance of co-operation the way of organising learning, the traditionally hierarchical system of structuring learning must be altered. Good intentions and ideological claims of co-operation are not enough, if the system and structuring of learning remains the same. In order for every pupil's equitable development to be ensured thanks to the developing co-operation, it is necessary to change the structuring of learning. In other words, the issue of making learning co-operative requires structural answers.

Thy myth of the success of the teacher lecturing on a lectern is still very popular among pedagogists. However, besides excellent teacher personalities, it also seems important that public education should offer an opportunity for everyone, not only for the children of those families that provide a background that is closer to school socialisation. The last more than thirty years have

⁵ ARATÓ, F. (2013): Towards a Complex Model of Cooperative Learning. *Da Investigação às Práticas*, 3(1), 57-79.

proved that co-operatively structured learning is one of the possible and necessary means for achieving quality education, that is, it is essential for the development of an educational practice in which the aim is the efficient, effective and equitable development of each and every student. Hundreds of studies in the fields of social psychology and pedagogy – underlying co-operative learning – have shown that this way of structuring learning has a positive effect on the development of children's tolerance and social competence, as well as on the successful development of their cognitive and learning skills regardless of their social and family background. Therefore the teacher does not only deal with planning knowledge, learning experiences and the competencies to be developed during co-operative structuring of learning, but considering the organisation of learning is a determining part of the process of pedagogical planning.

The role of cognition in maintaining flexibility

Further **crucial attitudes** of co-operative structuring of learning⁶ – i.e. that human knowledge is collective; everyone has the right for knowledge; knowledge is the conjunct construct of humankind; and everyone has their own personal needs and requirements concerning knowledge and learning – **help us see and understand how to develop learning processes** during learning together in small groups. Assuming that knowledge is a collective construct, it is clear that each child taking part in the learning must be made an active participant of the creation process. Or, following another example, if in a democratic society it is a constitutional right for everyone to access knowledge contributing to social success, then it is our constitutional obligation to provide truly equal access to the social goods available by means of public education for every child. However, our public education is capable of this presently, that is, individual success within the system of Hungarian public education is still determined by family background, in contrast with those countries in which a child can progress in the educational system regardless of family background, and where, conclusively, the average achievement shows higher degrees than in our schools.

Co-operative learning is based on the assumption that for efficient learning it is essential to recognise those who wish to learn by those who structure learning. It structures learning processes based on this recognition, taking **the uniqueness of the individuals as its starting point**. It is to say, the teacher is able to grant flexibility if he makes an effort to obtain thorough and efficient knowledge of the children, and provides personalised development in relation to this knowledge. Another condition of flexibility is that the teacher must be informed and experienced enough in the actual academic or art field to be able to connect the interest of the children, youngsters or adult people participating in learning to his own field.

That is why it is important in co-operative learning that the structural approach must be linked with the notion of flexibility, since the processes of learning together must be structured in a way by which they are in accordance with the personal, social, and cognitive **demands, recognised needs, desires, conceptions of the participants** and organisers, having been recognised and conceived together. In other words, **the most flexible form of structuring learning is where the series of educational activities follow a personalised and customised development plan for each individual person.**

Co-operative structuring of learning – the framework of organising learning activities

Co-operative learning is not a methodology in the didactic-pedagogical sense of the term, but rather a concept in structural methodology, a **framework for organising learning activities**. Its aim is to reorganise the life of a class set within a traditionally frontal framework, restructure learning activities (e.g. so that children are able to speak more, while the teacher less, etc.). The basic principles presented in this chapter show the way to this restructuring, as well as the actual practice with the help of the co-operative learning structures/methods having been developed during the last few decades.

⁶ See the chapter on attitudes

Co-operative learning defines the concrete practical principles, the attitudes necessary for the educator, the behavioural-psychological models contributing to development, and the practical devices having been ripened by more than 30 years of practice – the latter provide its actual methodology. The organisers of co-operative learning is able to react flexibly to the demands and needs of their students, because they **do not have to stick to certain methods during learning together, but only to mutual learning involving everyone**. It helps when they observe all of the fundamental co-operative principles introduced here, internalise the necessary attitudes, presents behavioural models. Then it will be possible for them to select freely and consciously from the available methodological tools, as well as to combine and create new ones.

We have learned a co-operative technique from teachers of physical education: 'shift training' or 'round training'. Here the children perform various activities in small groups of three, but they all have their own tasks at each station. For example, at handstands, two children help the third one; when throwing a small ball, one throws the other two measure the length, etc. When at a certain station everyone has finished with the task, then the group moves forward to the next station. This can be regarded as a co-operative task, since the principles of co-operativity apply. Regardless of the fact whether its users have even heard of co-operative learning or not, when they apply round-training, they are working in a co-operative way.

With the help of co-operative learning, we can **we can judge about any pedagogical activity whether it is based on co-operation, if the structures promote co-operation**, and all the positive effect co-operative learning has in practice. The point is not to merely copy co-operative techniques and methods but to observe basic co-operative principles and acquire the attitudes. Co-operative learning **frees the creative imagination of the teacher**, it provides the pedagogist with the building stones of co-operative structuring, from which the teacher will be able to **develop the framework of learning together flexibly**, with the help of his own concepts, creativity, wide-ranging professional repertoire tuned to the participants, and also in accordance with the thoroughly known needs and demands of the groups involved in learning together.

Open co-operative structures

Following the below fundamental principles will lead to the development of co-operative structures. These structures **provide the forms of co-operation** step by step for everyone, **as well as equal access and contribution to collective knowledge**. The pioneers of co-operative learning have invented numerous **well-functioning structures** based on the established principles, such as **RallyRobin, jigsaw or window** (to be introduced later). Two approaches of co-operative techniques have spread. One of them is the Kaganian concept that experiments with new co-operative techniques, structures, and which describes these and teaches them to everybody. At present there are more than **150 described, Kaganian structures independent of topic and subject**.⁷ In the other co-operative school, the Johnson brothers stress basic elements and competence. According to this, the teacher always has to start from the actual community involved in learning together, and he only needs to provide the basics / principles for smooth co-operation. This approach says that the final goal of co-operative learning is to provide co-operative experience and a wide range of personal, social and cognitive competencies for every participant sooner or later. For the Johnsons, really co-operative learning means autonomous persons organising their own education in co-operating micro-groups. While the process of learning is strongly dependent of external control, even in the case of co-operative structuring, we cannot speak of real co-operative learning. The goal is to structure learning processes in a way that makes it possible for the participants to take part and develop in an increasingly autonomous way, that is, to become less and less dependent on the organisers of learning, namely the teachers.

⁷ It is worth to read Kagan's revised 2009 edition, because in this Kagan reconsidered his own framework at several points, exactly in the directions that previously were missing from his system (e.g. the identical effects of reward and punishment in education).

The above approaches make it clear that the point is not simply allowing children to work together. Co-operative principles, attitudes and experience explicitly claim and prove that in heterogeneous co-operative groups such values, learning strategies, problem solving skills and **deeply ingrained knowledge** are created during learning together, which cannot evolve in case of traditional learning based on individual learning. Therefore it is an essential attitude in co-operative education that structures must always be **open to participants showing interest or wishing to join professionally or in terms of learning, and also to the topics and correlations emerging in them.**

In other words, it is not enough if teachers only implement their own ideas with the help of co-operative structuring; they also need to take the demands and emerging or recognised needs of the participating students into account. Knowing the children, constant openness to children are prerequisites of co-operation!

A device of flexible and open structures in co-operative learning can be **interdisciplinary and experiential structuring of topics.** The term 'experiential' is probably well-known among teachers, however, let us clear this notion. Here the variety and versatility of learning experiences is the thing that makes learning experiential for children. The interpretation of experiential learning as merely a series of games oversimplifies this notion.

If we take participants' personal interest or uninterest, existing demands and expectations as a starting point, and we also take collectively revealed and recognised needs into account, then the topics to be covered are outlined by the shared fields of interest of all participants (learners and facilitators as well). There may occur situations, however, in which there is no shared section of interest. Then the teachers must expand their horizons of interpretation⁸ so that they can respond to the students interests, personal questions, thematic problems, which might even be far from their persons. **Interdisciplinarity is a tool for overcoming the distance between the interest of the child and the subject of the teacher.** If the teacher is thoroughly experienced in his own academic field, then he is not only able to introduce the correlations between distinct academic fields, but also to link his own field with issues of everyday interest.

The following example shows that **interdisciplinarity** (in our example, linking semiotics to poetics) **also can serve for enticing interest.**

When I wanted to initiate some children into the literary nature of language, who never ever have opened a book and thought that poems were no use, I had to pore over the question whether literature has some "use" I could use as an evidence for these issues. Is there anything that only can be expressed in poems?

I should somehow trick them into speaking in poems, or at least in tropes.

I came up with lots of ideas, but a semiotic exercise was the most successful. The problem with functionalist approach is that it is descriptive, but I wanted to generate "poetic speech". Saussureian semiology, and later semiotics, which elaborates on the relation between nominator and nominee, proved more useful. In the exercise we analysed the various references of a sentence. For example, what the sentence "I bought a beautiful little tulip" refers to. "A flower", came the answer. "I painted a beautiful little tulip." "To the picture of the tulip!" How many words are there in 'beautiful little tulip'?" "Now we are talking about words!" "And in 'You may be balm to my wounds / you beautiful little tulip'?" "To his lover!" At this point it was easy for them to explain what the relation between tulip and the subject of one's love was. Later, when analysing metaphors, they also had to generate sentences. Pick a subject! Write a sentence about its image! Write a sentence about the word denoting the subject! And finally, write a sentence in which the subject is linked to some personal emotion or another subject which is not related to the original one. The children eventually found that they use tropologic language and they can express things they had not been able to before. One of the loveliest poems resulting from this exercise goes like "My heart is a torn coat"...

Three months later we edited a literary magazine with the children, made up of their own poems and analyses. Thirty-two kids out of fifty-five in two classes edited and contributed to this journal!

⁸ Hans Georg Gadamer outlines the way to reasonable dialogue and understanding as a 'fusion of horizons' in his book *Truth and Method* (Gondolat. Budapest, 1989)

Compliance with the demands and needs of participants also includes the teachers that take part in it. If they are not inspired by teaching, if they do not have a subject in which they are experienced enough to be able to entice interest in others, then they also have something to put down in their own personal development plans!

About the principle in short

The first basic principle of co-operative learning draws attention to the fact that in order to achieve co-operation, the way of **structuring learning must be transformed**. Co-operation can be expected from the structure having been developed if it **complies with all co-operative principles**, and if it is **flexible and open enough** to embrace individual needs and demands of participants (*all of them!*).

1.4. Personally inclusive parallel interaction

- *If you wish to involve everyone in classroom work, multiply the number of dialogues and interactions in classwork.*
- *The most effective way is to use several interactions simultaneously, several dialogues for the sake of learning at the same time.*
- *Try to make sure that everyone has an opportunity to communicate and participate in dialogues in micro-groups of 2 or 3.*

More interaction in classrooms!

The co-operative principle of parallel interaction counts the personal interactions between participants. It observes **how many personal interactions take place within a period**. During frontal work only one personal interaction happens between the teacher and the pupil the teacher has just picked with the passive attention of the others, i.e. the interaction is personal only for two people. This means that a reaction is given to only one student's question, solution to a problem, idea, etc. at a time, directly by the teacher.

According to the co-operative principle of simultaneous parallel interactions, **the goal is to increase the number of simultaneous personal learning interactions to as many as possible**. Of course, it is not possible for everyone to converse with the same person – the teacher – at the same time, therefore the principle of parallelism leads us to co-operative micro-groups. If all the pupils are placed into smaller groups, we can get *as many parallel interactions as the number of groups we have created*.

If I make groups of three in a class of thirty, then responses will come to the questions, thoughts and ideas of ten children from the others at the same time. If I also give a role to each of them; e.g. one refers, the other takes notes and the third ask questions, then in this class ten people refer, another ten ask and other ten people take notes in a triple interaction, simultaneously.

As we can see, parallel interaction **changes our picture made of learning and knowledge and our attitudes by structural means**. Michel Foucault mentions the pastoral function that has survived in a secularised form in public education systems. The lectern as a pulpit, and the symbolic arrangement of the desks – with their silent audience – conveys the message that the source of knowledge is the teacher preaching on the lectern. This hierarchical environment evoking pastoral functions may be suitable for the announcement of divine truths, but the nature of scientific or academic knowledge is different. Doubt, debate, demonstration, argumentation and understanding also play parts. Scientific truths have not only one source, and it is not the teacher. By applying **parallel interactions** we can not only say that we approach the process of acquisition in a child-centred way, but we really can “throw the lectern out” of the classroom, thus **allowing children to take an active part in the activities connected to knowledge**. *This also implies the radical revaluation of the role of the educators.*

The pedagogies labelled as alternative in Hungary eliminate those classroom structures one by one which suggest hierarchy, opposition and segregation even in their appearances. Chairs placed in a circle create equal opportunities even formally, since the spatial arrangement of the participants intends to show the mutuality of the flow of information, while the strictly regulated order of speaking proceeds towards equal participation. However, a large-group conversation circle is nothing else than a democratised form of frontal work, in which the opportunities of speaking per head is distributed proportionately, but their quantity does not increase in any given moment. It does not lead to simultaneous parallel interaction, because, at any point, there will always be one particular speaker or a dialogue enjoying exclusive attention. This means that the rearrangement of chairs is not enough to reorganise and restructure the learning process. The conversation circle does not offer a true alternative in terms of accessing knowledge, since it preserves the hierarchic structure of the dialogue requiring frontal attention.

The aim of parallel interaction is to involve **as many people in the processes of learning as possible, while all of them receive constant feedback on their knowledge**. The largest possible number can be achieved by pair-work, since in this case half of a class can express themselves at the same time. Pairwork is very useful when deep and thorough problem-solving is required, but if the group is given a difficult problem requiring a lot of thinking, it is better if all of them can think about it together, since there is a bigger chance for coming up with several ideas for the solution. When structuring parallel interactions, it is very important – especially in the beginning – to favour pairwork and groups of three, because that grants involving everyone in the collective work. Teachers making attempts at co-operative learning tend to think in larger groups initially (5-6 people), however, this can easily turn into traditional groupwork, that is, into a situation in which only one or two pupils work in the group, mostly those who have been working before as well. In order to avoid this, it is necessary to increase the number of interactions, even in larger micro-groups (of 5-6) by dividing them into subgroups of 2 or 3.

A fundamental attitude of co-operative learning is that knowledge is the result of collective creation, thus the source of feedback may not only be the teacher but peers as well. Children need knowledge about which they are able to give and receive feedback. What is such kind of knowledge worth that we cannot share and we cannot measure up ourselves? The best way to assess it is giving an account of it to or sharing it with others.

Interaction requires at least two people!

Parallelism and simultaneity in themselves are not co-operative principles. Taking tests, for instance, also happen parallelly and simultaneously; it is an interaction, since test-takers communicate with the teacher – even if feedback comes subsequently. However, it apparently lacks personalness. Parallel interaction takes place in the space of personalness during co-operative learning. That is, each participant needs to be given the opportunity to personally express their questions, ideas, opinions, emotions. Parallel interaction helps in realising it as an opportunity for every child in a class, not only for the 5-7 children who communicate well with the teacher. If you can express your expectations and demands in connection with a certain topic, if you can ask questions, brainstorm, put your feelings into words, you will develop a more thorough knowledge than by passively listening to others talking to the teacher about the subject for hours.

Parallel interaction in micro-groups allows for personal communication continuously and simultaneously. At present, we do not know any more efficient structuring principle.

Parallel interaction enables the whole class, in micro-groups, to proceed through a series of learning forms such as individual reading, interpretation, taking notes, collective interpretation, taking notes again, problem solving, individual presentation. In frontal classwork only the teacher and a “micro-group” of 5-7 volunteering children have this opportunity. What prevents us from involving everyone in learning, building upon the latter children – organising a group around each of them? By observing the principle of simultaneous parallel interaction there will be no such objection!

About the principle in short

In applying the principle of parallel interaction the number of interactions at the same moment is a crucial point, since the goal is to maximise this number. It is important that these interactions need to be personal (micro-groups of 2-4) and involve every participant of learning.

1.5. Constructive and encouraging interdependence

- *If you want your students to turn to each other and engage in conversation connected to learning, create positive interdependence.*
- *In terms of tasks, roles and goals, encourage and inspire them by structures in which they only can solve problems together, in which they cannot be successful individually without each other.*

Inspiration by structural means

This principle is based on the approach that **knowledge is collective, and we are dependent on each other in obtaining it**. All of us; teachers and students alike. Competitive and classifying methods of structuring learning (e.g. which try to motivate academic achievement by means of a grading system) create negative interdependence.

If only the first one gets a reward for solving a mathematical problem individually, there will be some who will not even attempt to complete the tasks, they only will pretend to do it. Those who are able to cope with the exercise, obviously will not show their results to the others, only to the teacher. Concerning the acquisition of knowledge, here students work “against” each other – or at least not in a co-operative way. This is what we call negative interdependence.

Expressions such as “Don’t prompt!” and “Don’t look” obviously and necessarily accompany competitive structuring of learning. In other terms, the constant conditioning of “don’t help” and “don’t ask for help” operates against the natural development of social competence, while it is essential for us as – in Aronson’s term – “social animals” to recognise the situations when we are required to help in every spheres of life, and also to admit when we need help without reservations.

The point in positive interdependence is to **structure learning processes in a way that acquisition is only possible by co-operation**. That is, we create learning structures promoting co-operation, in which **participants only can learn successfully if they really co-operate with each other**.

If a micro-group only gets one copy of a worksheet, but each member must be able to complete it, then they necessarily will have to share the sheet.

If each member has to process different materials, but all of them have to know each section, then the task itself incites co-operation. I give the instructions in such a way that they only can be followed with co-operating. This is what we call inspiring interdependence.

Co-operation between students will not be achieved by telling them to co-operate (“Work together!”), but by creating situations requiring co-operation, in which they recognise the necessity of learning together through their own learning experience.

“You got only one mathematical task, but you will have finished it only when each member can complete it. I will pick someone randomly, and he or she will have to know the solution.”

Constructed by all; constructive for all

There is an underlying attitude of positive interdependence regarding the nature of knowledge. Co-operative learning is based on the idea that **knowledge is a result of collective contributions**. Thus, ideally, **any one person's knowledge is built on the others' knowledge**. The term 'constructive interdependence' used in Hungarian literature refers to this fact. In co-operative learning processes steps have to be **organised in such a way that ensures that every person's knowledge can be built upon, and the knowledge of individuals and micro-groups is built on each other**.

One of the most well-known structures promoting positive interdependence is connected to Aronson's name. This is the **jigsaw method**⁹. The main point of the jigsaw method is that the contents of the lesson to be acquired are divided into as many parts as the number of micro-groups, or as the number of the members in a small group. Then the children engaged in different parts teach each other their own segments. Then the lesson is built up together as a whole, step by step, like a jigsaw puzzle.

One of the most prominent problem of teachers of history and literature is that their students cannot see correspondences between different periods, moreover, they are not able to put together historical events having happened at the same time or in the same period. Teachers of sciences often complain about something similar: students do not recognise interdisciplinary relations. The problem results from the fact that the primarily applied methods in Hungary, termed as frontal education, only allow for a linear approach, and they cannot really demonstrate correlations. Constructive interdependence and simultaneous work in small groups are able to involve e.g. a historical period as a whole – even in the first 45 minutes of the time dedicated to this task – then later it can elaborated on further.

In history class, each group is designated as an empire existing in the same period, or as different rulers of an empire. While groups are engaged in their own areas (taxes, forms of governance, culture, language, events, people, economy, lifestyle, etc.), they also communicate with the other groups or time-travel to various periods of their own state so that they can understand the circumstances of their own age or country. The aspects of comparing certain eras or empires give the aspects of processing their own segments for the groups. Thus, when students elaborate on their own segments according to the same points, there will be a place for answers coming from other groups in the same structure. For example: "If we travel to the Frankish Empire, what kind of money shall we use, who is the ruler, etc.? Let's send an envoy to find out!"

In case of sciences, groups may describe, for instance, the same phenomenon from the point of view of different disciplines, thus making it clear how each discipline approaches the same phenomenon.

Behind succession of knowledge and the principle of positive interdependence the traces of environmentally conscious way of thinking also can be discovered. The recognition of the fact that the life of our planet is our common responsibility, and therefore our lives are interdependent of everyone else's life, of course is relevant for collective knowledge as well.

About the principle in short

Positive interdependence must implement two important points in co-operative learning.

- Learning processes must be created in such a way that they **inspire co-operation**. This is one side of positive interdependence, namely encouraging interdependence.
- On the other hand, **everyone's knowledge and work must be necessary in order to accomplish the learning process**; every person's knowledge must be built upon everyone else's knowledge. This is the other side of positive interdependence: constructive interdependence.

⁹ Aronson, E. – Blaney, N. – Stephan, C. – Sikes, J. – Snapp, M.: *The jigsaw classroom*. (Sage Publications, 1978.)

1.6. Equal access and participation

- *Create learning structures in which everyone is granted to be able to give their voices, step by step, regardless of the fact where they are in the learning progress.*
- *Multiply the kinds of activities that can be chosen by the students, the available resources and the ways of learning, so that everybody can find a path to choose.*
- *The tasks of the members of micro-groups must be considered individually during planning; namely it must be decided who does what.*

Equal access is a basic democratic right

The basic approach of co-operative learning to knowledge is that **access to knowledge is a fundamental democratic right**. Everyone has the right to improve their knowledge. We can take part in collective decisions equally if we have equal access to opportunities, information, and the conditions of participation. In the same way as it is true for democratic social participation, it is also true for participation in public education.

Therefore the basic co-operative principle of equal access says that the processes of learning must be structured in a way so that everyone can access shared knowledge. Examining how a in a traditional class an attending student texting behind the desk and another student actively participating and in constant frontal communication with the teacher access knowledge equally, though attending the same class, maybe it will be clear that access is a crucial point. The issue of access cannot be bound to diligence, even in this example. In a situation where structurally and habitually only one or two participants can communicate with the teacher organising learning, the other participants cannot take part in communication from the start; it does not matter whether they send text messages or pay attention to the lesson.

By the fact that the participants think, learn and work together with their peers in small groups, each group increases its chance for participation, access and progress at individual pace in obtaining knowledge. The opportunity for direct access to knowledge is bigger for everyone, especially if equal participation is structurally granted within the micro-group as well.

One of the most simple structures or techniques is Rally robin or Round Robin: members of the micro-group speak one after the other. For example, if they collect terms individually, they present the results in Rally Robin; each of them only one at a time. Usually the presentation is weighted, that is, if others has the same item, they tell each other about that. This way they always can know how many people have collected the same item in the group.

If structural guarantees are built for equal participation and access, students with less developed personal, social or cognitive skills receive help and behaviour models to the development of their individual ways of acquiring knowledge from more their experienced peers directly and personally. They can experience self-confidence, strength and real improvement, making them equivalent members of the group. Continuous collective responsibility inspires conscientious and hard work. They will recognise the fact that the skills most necessary for learning, creation and working can be improved, thus they are equal partners.

On the other hand, students with more developed personal, social or cognitive skills obtain even more deeply ingrained and thorough knowledge by teaching their peers, they will obtain extended knowledge in proportion with their competence, thanks to the creativity and flexibility of co-operative learning. They will have especially well-developed social and organising skills. Their way of thinking becomes multi-faceted by continuously paying attention to others' questions and ideas. They will be able to observe events from several points of view, they will be more tolerant and co-operative. They realise that their high-level skills can be manifested, shown and utilised for the benefit of others primarily in a co-operative framework.

Access and participation go together

So co-operative learning creates ways of structuring learning for the sake of access to knowledge which **make it possible for everyone to accomplish the pursuit of knowledge according to their own demands and needs**. Let us see an example. We could say that everybody can buy and read textbooks, so their guilt be on their own heads if they do not do it. It only would be right if everyone was able to study from books. A number of studies in applied linguistics have pointed out the differences of socialisation in oral cultures and the school, built on a world of books. The communicative competence expected in schools presumes a kind of family socialisation based on books. In addition, the traditional forms of education are unable to represent any different competencies within their system, nor they are able to have the forms not practised at home acquired or be transformed into competency. After all, in order to be able to digest texts, we need to practise this activity in various forms of learning. In the frontal classwork, so commonplace in Hungary, very few children ask questions, stand their mistakes, argue for their opinion or outline their – maybe wrong – strategies for solution. However, everyone must go through forms of learning involving the most cognitive schemes possible in order to be not only able to read but also to comprehend a text. Not any one student's opportunity for practising could depend on the fact whether the student is able to join the process of frontal education or not. Frontal teaching – regardless of the teachers' good will; from structural reasons – does not provide opportunity for activating each student's diverse cognitive skills.

Research into micro-group structuring of learning have **proved that by means of co-operative learning, 90-95% of children take part in every offered form of learning and thinking individually and personally**, in contrast to a significantly lower figure in case of frontal teaching. When we make comparisons of how many children take part in taking notes individually, reading, collective interpretation, drafting and individual presentation during a lesson, then co-operative learning bears the palm.

If every child can practise all the time, in more versatile learning forms than passive listening, which activate various cognitive schemes, then **sooner or later** – as it has been proved by research – **we can talk about truly equal participation** in the process of knowledge acquisition, **regardless of social background**. This does not mean that everyone contributes the same thing to the collective knowledge, but that **everyone contributes to it with an equal opportunity**, according to their own skills, their competency level, their place in the process of acquiring knowledge.

Thus, we must endeavour to **ensure that everyone's knowledge plays a part (equal participation), and everyone has an equal opportunity to access knowledge, that is, in accordance with their actual knowledge, competence, demands, expectations, recognised needs (equal access)**. No one should trudge, but those who need more time also have to get the opportunity!

Providing equal opportunities in practice

Not knowing contributes to the manifestation and unfolding of knowledge to the same degree as comprehension. The questions arising from not knowing are the ones that may make knowledge comprehensible.

In Platonic dialogues, the question-and-answer series of Socratic questions or catechisms know this nature of learning well. Knowledge unfolds in unique constructions for every cognising and asking individual – in the dialogues and interactions of knowing and not knowing, not comprehending and comprehending. Knowledge is the way itself, not a constant set of information.

At the same time, by recognising not knowing, we have taken the first step towards knowing. According to Socrates, the love of wisdom, that is, philosophy, arises from the fact that we recognise that we do not know anything. Therefore we turn towards wisdom for teachings.

Co-operative learning

- provides everyone with a **supporting micro-group** the success of which also depends on the individual's success;
- everyone has an **individual role and personal task** in the learning of the whole group and in constructing its collective knowledge.

This principle is emphasised in Aronson's jigsaw method. Its main point is that each student works on an individual segment of the lesson, which they present to the others during the learning process, thus every participant contributes to the collective knowledge of the group with their own little jigsaw pieces. The colour, shape and size of pieces may differ, but their equivalence is ensured by the fact that each of them is equally essential to complete the picture.

Assigning co-operative roles can be helpful as well. Co-operative roles are conceived in order to improve behaviour models and competencies related to the functioning of the micro-group. One pupil can be appointed as the 'Encourager'. His responsibility will be to provide equal access to participation in collective learning activities, and to ensure that everyone does take part in learning. In the group everyone is equal, that is, there is no 'boss', everyone has a different role. If someone has acquired the appropriate co-operative behaviour models by acting out the part successfully in the areas involved by the role, they can take up another role. The earlier part is taken by another member, to whom he or she will be able to help in person so that the peer can act out his or her earlier role as efficiently as possible. It can be seen that we can grant that everyone practises each learning from by these roles.

About the principle in short

The co-operative principle of participation draws attention to the importance of providing *equal access* to knowledge and *equal participation* in learning processes. It can be achieved with the help of personalised interactive structuring of learning. If not each child has access to the collective knowledge and/or takes part in learning directly, we cannot speak of co-operative learning.

1.7. Personal responsibility and individual accountability

- *Allow and ensure for students to look for and take upon a task on their own.*
- *Let students – and ensure the opportunity for it – be traceable in the tasks they take on and in their development.*
- *If you let them decide, volunteer individually and together, individual accountability will allow for personalised feedback.*

Personal presence in responsibility

The role of the individual is crucial in co-operative learning.

This is because co-operative teachers start at the individual's actual knowledge, skills, demands, needs and expectations when planning the learning process. They try to satisfy everyone's – children's and teacher's – individual needs and demands during learning together. Students work in personal interaction, in micro-groups, so that they can continuously put their questions, needs and ideas into words, give an account for their knowledge, ask for help, and in all these they would not depend on the teacher.

That is to say, the group needs to be developed until it becomes natural for participants to express their spontaneous, even emotional reactions concerning learning, and until they master communication regarding both the subject and following interest. This continuous self-articulation makes it possible for the participants to be present in learning interactions more and more personally and that their personality can unfold in more and more dimensions during learning. This

also means that they will increasingly be able to take personal responsibility for individual and collective activities.

At the same time, a continuous reflexive publicity develops in co-operative micro-groups, in which the participants' activities and communication is interpreted. Constant peer feedback also proceed towards personal responsibility.

In co-operative systems **each member** of the micro-groups **has a role within the group** in order to promote this process of development. These roles, as we mentioned before, are partnership **behaviour models contributing to learning together**. They are made-up dramatic tools and group-roles that are, based on the revealed needs and demands of teachers and children alike, necessary for efficient, effective and equitable group-work.

For example, if the students cannot handle learning time, they will need a "Timemaster" who schedules their available time with his partners and monitors it. They also need an "Encourager", if not everyone takes part equally in the work. He or she is the one that encourages participation, for instance by taking care of the similar number of times when members speak up. The most important thing is that everybody needs a role in the group.

All students in a class receive attention, not only the "bright students", those who are on "weekly duty" or those who are responsible for the labs. Everyone has the opportunity to develop in a role or to act hiding behind one, or even to refuse it. Thus the activities connected to the role or happening during playing the roles get into the centre of attention, and feedback also relates to the roles. By means of these roles everyone has the chance to take part in the group processes: taking up one, everyone can decide, volunteer, present or ask for an account. Because each member of the micro-group will know exactly what his role and task is, what he has taken upon and accomplished, how well-prepared he has been.

Roles also help in the sense that **individual development plans** can be lined around them with the participants. That is to say, individual responsibility also leads to personalised education, since participants are able to take part in the process following their individual undertakings. It is another issue that by means of positive interdependence we connect these individual plans and ways to the others, thus they cannot but choose to co-operate and their common goal is the promotion of each other's individual success.

As it can be seen, co-operative does not implement differentiation in homogenous groups, but in **heterogeneous micro-groups planned at the level of the individual**. It does not differentiate but individualise. It does not distinguish but opens each participant individually, and allows and enables them to make decisions on their own, thus making the pedagogical process versatile and manifold. Individual development plans can be defined by competency groups and topics both. This way distinct plans are made in co-operative learning at the level of each individual participant, for example the below ones:

- **personal competencies** (self-awareness, self-control, motivation)
- **social competencies** (empathy, social skills)
- **cognitive competencies** (individual note-taking, interpretation, etc.)
- **awareness of information** (what knowledge is acquired from what kind of sources).

Nevertheless, it is important to note that individual development plans must be created within an authentic feedback process, in a form that is equally comprehensible for every participant (students, parents, teacher) who also can express their own needs, concepts and undertakings in connection with learning – this is personal responsibility. Getting to know and understanding each other (student-teacher-parent), and conceptualising individual and collective goals, activities and tasks are crucial aspects. Within these agreements, actual goals, concepts, activities and provided services are conceived in a personalised way, that is, not in charts full of technical terms, but in a common reminder having been elaborated eventually to actual pedagogical activities.

In certain practices contracts are made in connection with individual development plans, in which the teacher, the child and the parents alike undertake clear, comprehensible and accountable tasks.

An important aspect of individual development is that the individuals are able to take responsibility for their own learning and they develop autonomy and self-reliance in learning. If they themselves are unable to realise the weight, framework and forms of their own development and learning, then they will have much lower chance to acquire knowledge and develop their skills that enable them to get along later in their lives freely and autonomously.

Some educators happen to teach children who are less able to see the importance of their education in their later lives. The majority of children with poor and uneducated backgrounds are like that. It is especially important for them to realise their opportunities of the school in their own personal lives.

For teachers, responsibility often concerns responsibility for the task, that is, to the fact whether the students have completed the exercise – e.g. the homework the teacher has handed out. However, learning is basically not a matter of responsibility; interest, autonomy, curiosity, supply and flexibility have much more importance. At the same time, awareness of tasks, the conscientious completion of them also can be a goal in development, since if someone is not able to perform tasks purposively, then the teacher builds the whole learning process on individual tasks (studying at home, homework) in vain. Psychology has proved that mainly those adults have the ability of purposive and self-controlled behaviour who had the opportunity to decide in their childhood, as well as to understand opposing interests in conflicts. In other words, instead of punishment and rewarding, they were involved in decisions and actions by using e.g. parental conversations, self-expression and comprehending attention and collectively established decisions and rules. One of the important stages in the development of responsibility is when individuals have the chance to decide, and then directly bear the consequences of their own decisions.

In a Freinet nursery school, after breakfast, children marked in a five-branched board what they wanted to do that day. The five circles meant five centres of activities in five different corners of the school. At one place, they could draw, paint and do crafts; thumb magazines and books, play logic games, play with building blocks or build a zoo on the carpet at another one; at yet another one they could play with puppets or don costumes and masks; and the room also had a sand-and-water table. Children could mark more than one activities by hanging their individual symbols on the desires branches. Each activity site had their own home rules (e.g. how many children there could be at the same time; how the tools could be used; where the completed creations had to be placed; how they needed to tidy the place after playing; etc.). Children decided on who would do what and when on their own; except for the morning and afternoon conversation circles, mealtimes and the time to be spent outdoors. Teachers and assistants only acted as facilitators. At the end of the day, in the closing conversation circle, they reported what they had done and whether their morning plans were realised. Teachers did not give any assessment, they just made it possible for all children to give an account of what they had done that day. In the mixed group, the works of the youngest ones were shown by the teacher. However, all the older children wanted to give an account of what they had accomplished, what they succeeded or failed at, and they would make up for the delays, on their own. Teachers did not ask them to give an account, they only provided them opportunity for expressing themselves and their opinions, as well as for decision and free choice. For me, the most interesting point in this practice is that the development of autonomy and responsibility at the age of 4-5 can be a natural pedagogical goal in the nursery school. While, at the same time, most teachers working at primary or secondary schools are reluctant to grant older children or young people autonomy and spontaneity.

In summary, personal responsibility can develop when individuals can enter the learning process with their complete personalities; if they can participate actively in the decisions and undertakings concerning learning. It is important that the teacher should be able to offer a wide range of activities for the participants.

Individual accountability is important in responsibility

No person will accomplish a task just because we have assigned it. They will do it because they are already personally motivated (they are interested; they want it; they can do it), or because they are able for task-oriented behaviour, or because we check on them. To put it in exact terms, **reporting on the undertaken tasks is the thing that is realised by each participant (teacher and students alike) in co-operative learning.** This is what proceeds towards individual responsibility and conscientiousness.

If we look upon working together as social influence, we may well progress only until “compliance” by the means of co-operative learning. Since others rely on other members’ individual work, they like it or not, sooner or later they all must set to work. When they have experienced success and have learnt something from each other, then everybody starts feeling as one of them, they identify with their groups and team spirit also motivates them. Later participants recognise how their individual learning is contributed by learning together with the others in co-operation. This internalisation makes co-operation an internal need, beyond influence and emotional identification.

Publicness in the micro-group, ensuring involvement, is the factor that will enable individuals to progress to internalisation through the stage of identification. To the stage where they are able to achieve their own goals in co-ordination with others’.

Successful individual responsibility and checking is granted by **organising learning processes in a way** in which **everyone will have their own personalised**, clearly put **tasks** making the conditions of accomplishing and the aspects of assessment public, and **for which tasks they can and must take personal responsibility.** This responsibility develops publicly within the micro-group, in the eye of all members.

Individual responsibility is not unknown in individual and competitive-gradative systems either. Individuals are responsible for their own achievements as well. However, co-operative learning does not only make participants responsible for their own learning, but it places them into situations of free choice and it also **provides them with the necessary** tools for accomplishing the tasks they have undertaken and for giving account of their progress continuously and individually.

Such tools include the above mentioned co-operative roles that show what behaviour models and related co-operative tools enable the participants to learn together successfully.

*The already mentioned Encourager is such a practical helper whose task is to make sure that everyone take part in the work equally. The Encourager can use e.g. the structure **Rally Robin**. In short, as we have already mentioned, its point is that each member of a micro-group can express their opinions on a given subject or can add their individual collection to the whole one by one, taking turns. When the Encourager is able to apply Rally Robin on its own, then he can promote the development of equal participation, thus playing his part responsibly.*

Differentiated, personalised and jigsaw-like built exercises contribute to the development of personal responsibility in the same way, for which co-operative learning teaches learning forms, also with the help of the roles.

Staying on task can be promoted by the application of the role of the Taskmaster. The Taskmaster’s task is to ensure that members interpret the exercise together with the help of a chart with points aimed at facilitating interpretation.

These roles go around among group members. This way **everyone has the chance to acquire all the necessary tools and behaviour models** that help them carry out their individual tasks in a responsible way, and then report on the accomplished tasks. **Continuous publicness in the micro-group strengthens individual accountability.** When group members work together, peers continuously monitor individual performance.

When I work together with my peers continuously, then at least my groupmates – two or three peers learning with me – will be aware of the fact how I can accomplish the tasks I have undertaken or I have been assigned.

However, individual accountability also have some very simple structural means.

For example I can assign a certain task to the Encouragers of each groups, then I will know who I will have to check on that task in each group.

I can assign marker colours to group roles; that is, I appoint a certain colour for each role, and the representatives of that role can only work with pens, pencils or markers of that colour. This way I am able to monitor or check any one person's individual written work or contribution.

In case of jigsaw work – where each group elaborates on a different segment of the lesson and teaches them to the others, I can know exactly who is responsible for certain segments in a group.

In short about the principle

The essence of the co-operative principle of responsibility is that structuring learning must create situations of personal responsibility in which the participants *can undertake personalised and clearly defined tasks* individually and personally (with the help of roles and co-operative methods). This also involves a situation of accountability and development in which *participants continuously demonstrate their development and personally undertaken tasks in the publicness of the micro-group*, since they correlate with the groupmates' tasks in positive interdependence.

1.8. Critical and reflective publicity provided step by step

- *Make sure that each student's knowing or not knowing is public within the micro-group.*
- *Provide documentation step by step – let participants make it.*
- *You must know the models of non-aggressive, assertive communication so that you can teach it to children.*
- *Build upon the publicity of micro-groups – so they would take responsibility – by spending time on the development of the publicness of micro-groups.*

Learning-centred publicity of attainments

If we observe the role of publicity in connection with the individual responsibility of students, we will see that a way of monitoring and assessing students' progress is publicising their attainments. In traditional structuring of learning the publicity of students' attainment is linked to the teacher's presence. When student take written or oral tests, answer questions and do homework, it is public and available only for the teacher. In addition, direct and personal feedback to a student can only be given by the pedagogist only once or twice a month, even if we assume 3-4 oral test takers per class; that is, students rarely have the chance to make their attainments public within traditional frameworks of learning.

That is why **in learning-centred co-operative learning the publicity of learning is structured**. Any kind of feedback is of great help for the person wanting – or even not wanting – to learn. **Peer feedback can be of as much help as authentic teacher feedback.**

Students are supposed to open more easily in front of their peers, they express their feelings concerning the lesson and ask their questions more openly.

Those who comprehend the lesson will try to explain it. If they do not succeed, it is a kind of feedback, too: they will need to deepen their understanding. Those who do not understand it will help in collective comprehension with their questions, since conceiving the answers for them increasingly accurately, the micro-group will summarise everything they need to know about the subject.

I do not say here that the teacher cannot explain well enough, but that it is impossible to engage in direct and personal interaction with 25-30 children at the same time. Experience of frontal classes also shows this fact: 8-10 active participants counts as successful; however, the other ones still remain passive.

In co-operative micro-groups it is **revealed publicly, step by step**, whether a person has managed to learn the lesson or not, and what questions or solutions the group has concerning the problems that have emerged. Another kind of publicness is present here, too: the active support of the access to knowledge. The teacher provides micro-groups with **tools suitable for free orientation and activities** (books, CDs, videos, websites, stationery, crafting tools, etc.), as well as **offering structured forms of co-operation**, games, working structures, later developing the groups in **reaction** to these. This is how the teacher promotes the development of the tools necessary for **self-reflection, analysis and self-improvement**. This activity opens a wide range of sources of knowledge for the participants of learning together. Instead publicity based on the teacher's presence, it is much more efficient if **each participant can work continuously in public**. This is only feasible in the publicity of micro-groups.

The publicity of micro-groups: developing responsibility

The teacher delegates responsibility to micro-groups by building the continuous activities off monitoring and assessment on the publicness of micro-groups learning together. At the same time, teachers do not have to forsake their own means of assessment – like tests or presentations –, but they do not need to use them for motivation any more, because the publicity of micro-groups gives space for feedback.

Group members continuously see to what degree their peers have attained the lessons; if they are well-prepared and can be relied on, or whether they need further help.

Let us imagine that in a game of Rally Robin each member has to name an artyodactil. It is revealed instantly who is able to accomplish the task. If there are members who do not succeed in it, their peers can help them understand by examples and explanations. The exercise only goes on when every member is able to solve the problem.

Teachers who facilitate children's learning together in small co-operative groups have an enormous advantage over their fellows using other forms of learning, since, they **have the opportunity to observe children – any one or even all of them during only one period – in various learning forms, in the publicity of micro-groups**.

For example in Aronson's jigsaw, when each children works on different segments of a lesson, what motivates them is the fact that they will have to publicise their attainment, because their peers will get acquainted with the given segment through them.

At first, they work (read, write, take notes, collect, etc.) individually. It is important to note that tools and sources need to be provided for everyone at the beginning. After finishing individual work, they check, interpret and analyse their understanding together with members of other micro-groups. Then they prepare a clear and comprehensible draft of the interpreted subject together, and with the help of this draft they also check if they have memorised every important part. They go back to their groups only then, and the members teach each other their topics one by one. Their attainment in any of the topics can be checked by the teacher, even by means of written tests. Since all this takes place publicly within the micro-groups, it is also available for the teacher. Thus he or she can observe the students in learning situations which reveal much more about the real knowledge, competence, approaches, inhibitions, self-awareness of the children – due to their versatility and multiple approaches – than, let's say, an oral test in front of the whole class.

There is no co-operative publicity without open, non-aggressive and supportive communication! In order for the micro-group publicity to function, **we must learn to talk to each other and learn together.** This requires the improvement of our competencies that are usually called **personal (self-consciousness, self-control, motivation) and social (empathy and social skills) competencies.**

Among others, Rogers¹⁰ and Gordon¹¹ developed the basics of the communicative and supporting attitudes that makes the publicness of the micro-group efficient (instead of fighting). We also recommend their guidance, since their books are widely available in the Hungarian book market.

One of their fundamental approaches is that children follow a self-actualisation tendency – this is Rogers' term – which means that they search for the way how they would be able to be much more present in their own lives. This idea is taken further by Gordon, Rogers' student, who says that **children are competent in solving their own problems.** They think in a whole, complete world, too, in which they wish to feel more consistent. That is why they need to be helped to **express their feelings and thoughts** as much as possible, and their acts to follow and express what they feel and know. This way they will be increasingly able to conceive the questions, fears and desires that are important for them, not only to their peers and teachers, but to themselves as well.

As soon as they are faced with their real – and probably hitherto hidden – problems concerning learning, the self-actualising tendency will lead them towards solution.

A simple example is when a 16-year old teenager wants to see the one he loves (essential problem), but he cannot speak about it at home (lack of congruence), and he is grounded, but sooner or later he finds out how he can sneak out, totally evading the publicity of the punishing-nurturing aimed at protecting him. That is, the less opportunity there is for the expression and representation of interests and emotions, the less chance there is for co-operative publicity.

By 'congruence', Rogers mean when the emotions, the related conscious contents and the activities manifesting the former ones are consistent. Some mean sincerity by this term, but it is more than that. When an angry person is shouting, we feel it sincere. However, a congruent person knows that anger is a secondary emotion, behind which there always must be another emotion (anxiety, worrying, jealousy, lack of confidence, etc.), therefore he will focus on this other emotion inciting anger instead of (or after) shouting.

Co-operative publicity provides **continuous spontaneous reflection** for the child's competencies. Peers hold a good enough mirror up to students so that they will be able to recognise their sides to be yet developed with the help of their peers' feedback. In addition, the continuous co-operative group evaluation, in which members evaluate the co-operation within the group and the role of the members in it, helps to formulate these messages **consciously, from time to time.** Groups check their co-operation from time to time – even at every time, they set down what has worked and what has not, and who needs to improve what in which ways.

Ensuring publicity of learning by documentation

Co-operative publicness is also manifested in the continuous documentation of attainment. In co-operative learning **the process of acquisition is documented step by step.**

The works of micro-groups are put on the groups' desks, the group collections, placards (large collective written works) onto the walls around the room, at least until they finish with the current topic. The visual representation of the collectively attained and processed knowledge also helps in orientation, repetition and imprinting for participants or inquirers, since if someone enters the room during a break, they can see exactly what they have learnt about in the past two periods. If we enter a traditional classroom, we have no idea what they talked about 20 minutes earlier. We only can find it out if we ask somebody. Collective knowledge is **manifested publicly** in co-operative systems, and thereby it **becomes available** for any literate person.

¹⁰ ROGERS, C. (1995): *On becoming a Person (A Therapist's View of Psychotherapy)*. 2nd ed. Boston, New-York: Houghton Mifflin Company

¹¹ GORDON, Thomas (1989): *Teaching children self-discipline*. Crown Publishing Group, New York.

*Co-operative pedagogical practice has developed several usable co-operative structures/tools in order to create step-by-step publicity. **Window** is such one. The first step in window is individual work: collecting items (definitions, questions, solutions, formulae, dates, etc.) on a sheet of paper, with an individual colour marker. In the second step, they draw a “window” divided into as many parts as the number of the micro-group members. Everyone can use only their own colours, but every colour has to appear on the sheet. The sections of the window are numbered, beginning with 1. Students put down the collected items one by one, as in Rally Robin, taking turns in presenting their items. At each presentation they find out how many people have collected the current item, and they write it in the section with the same number. I.e. if only one person, than to section 1, and so on. Thus each item is discussed, regardless of the fact whether it is correct. The aim of the window is to provide publicity, that is, to make it clear for everyone what they know about the given subject. The purpose is not to create flawless windows, but to articulate the momentary state of knowledge of the participant, and to record it, so that it can be reflected upon. The correctness of the collected items is not decided by the principle of majority (i.e. not the number of their collectors) but by the teacher or other sources, e.g. course books or other professional aspects given by the peers, etc.*

The example of the window clearly shows that the level of individual work is also documented in a way (in individual colours, with markers, in capitals) that even the monitoring teacher can obtain a picture of individual progress.

The collective drawing of the picture brings the group having been working individually together again: they put their heads together, discuss the task (who will draw what), they create something at the same time (because every colour is needed), on a sheet they share (that is, interdependently). After that, documentation takes place in steps, which, because of collecting identical items, forces participants to engage in dialogues, at least about who has and has not collected the given item. The goal is, of course, to interpret and clarify each item, if necessary. It provides a great opportunity for that when someone has written something similar, because they necessarily will discuss whether they mean the same thing. After the interpretation of the first few shared items it will be natural for them to ask about every collected item, thus contributing to their own understanding and unfolding real publicity, in which the children cannot hide behind formulae and dates, because they must be able to explain them in order to check if they mean the same.

Thus, **collective and public documentation** is not optional in co-operative learning, but a **comprehensive means of equal access to knowledge**. The outside form of collective knowledge unfolding during learning together is documentation. Teachers only make documentation when they take a digital photo of the products of projects, or make up a thematic folder from the numerous sheets of paper and they hand them out to small groups to computerise them or to glue them into the thematic book of the class from which they will be able to complete their individual notes even later.

Another function of micro-group publicity is to leave space for spontaneity, since this is how participants really can put their needs, questions, doubts, etc. into words. That is to say, micro-group publicity always must be interactive, it does not only mean that everyone gives a presentation on their own sections while the others listen, and that is it. It has to be organised so that listeners need to interact with the presenters, e.g., if they have any questions, they should ask them, if they do not, let us give them questions with which they can check their understanding.

It is a frequent misconception in traditional group-work that the micro-groups, after having finished with their tasks within their group, present their work frontally, thus “conveying” their work to the audience. The disadvantage of this structure not based on parallel interaction is that the knowledge of the micro-groups will not be available to the others, since what they have discussed, worked through and elaborated on together, the others will have to understand from a lecture. It is clear, that what is missing for co-operative publicity is the interactivity of the publicity between groups.

In short about the principle

Publicity present in micro-groups does not necessitate co-operative in itself, therefore this principle states the following:

- publicity within the micro-group must be provided to everyone,
- this publicity must be interactive, that is, to unfold in dialogues,
- publicity is not optional, but a conditional part of co-operative learning, that is, fundamental co-operative principles need to be present in the publicness of micro-groups as well,
- step-by-step documentation is a tool for the publicity of attainment and of access, therefore it needs to be planned in steps,
- the products, work and knowledge of micro-groups must be included in the publicity of the whole large group, possibly within the framework of parallel interactions and positive interdependence.

1.9. Consciously improved personal and social competencies

- *Do not focus merely on knowledge, take the condition of skills, attainments, experience and approaches into account as well.*
- *We need to expect public education to improve children's personal and social skills as well, since they are crucial in social success.*
- *Develop children's self-understanding, confidence, conscience and co-operative skills consciously.*
- *Not only special competency-improving tools but co-operative structures also help in all these!*

The role of competency-based development

The Johnson brothers highlight the conscious development of interpersonal and group skills¹², and they also regard it as an elementary and basic principle of co-operative learning. In their interpretation it means that the conscious development – and the participants also need to be aware of it – of children's personal and social skills related to themselves and their peers must be an important part of the consciously planned educational process and of the means of the applied system of learning and teaching for the teacher.

For example, when a fierce debate starts in a small group (with everyone shouting, arguing and quarrelling around the group table), Rally Robin can be suggested so that everyone can present their opinions, one by one. If they work in the form of round table, they also can write down the different arguments, if they write them on small pieces of paper, the arguments can be categorised, e.g. as for or against. The huge number of opportunities – and huge amount of work – usually smoothes down the quarrel enough for the children to quickly have their say and continue working. However, if the debate is more serious, they themselves decide to write or even to categorise the arguments in order to ensure decision and progress. Anyway, while they progress in learning, they also learn how to use a debate constructively for progress in a way in which everyone can express themselves, and this will be a key to the solution. We learn to apply co-operative structures instead of power structures.

Competency-based development is another attitude which is **essential in the efficient manifestation of co-operative learning**. Competency-based development, as in the above example, leads children

¹² To be accurate, they speak of the development of „interpersonal and small group skills“, that is, such skills, that are necessary for building personal relationships and to co-operate well in small groups. (Johnson, D. W. – Johnson, R.T. – Holubec, Ed. – Roy, P.: *Circles of learning*. Alexandria, 1984.)

and adults to applicable knowledge, information, practice and attitudes that can be adapted in other situations, and by which they can be successful in professional and career situations, as well as in interpersonal relationships.

Competency-based education or training does not take away from traditional education but complement it with indeed relevant aspects and efficient and effective practice. Concerning development, it does not only focus on attainments and experience but it utterly pays attention to the conscious development of skills and competency fields, and to the acquisition of best practice and models. For this, it clarifies and helps interiorise the attitudes that are important for practical applications and to the establishment of best practice.

It has been raised in the discourse about co-operative learning that another area of developing competencies – besides knowledge and attainment, skills and practice, and attitudes and values – is the development of so-called meta-competencies, that is, of such competencies that will help students as future citizens place themselves in the Big picture, in other words, by keeping a distance, to see their own behaviour, actions and social activities from a societal perspective.

In the above example about debates the conscious development of personal and social skills can be seen: in case of arguments, throw in a game of Rally Robin, that is, let's give a chance for everyone to express themselves; if necessary, let's write a list in a round table, even on pre-planned pieces of paper with colour markers, and then let's see what happens. This means that during collective activities children get and learn models for the co-operative solution of vexed situations, thus realising not only how they can utilise the power of a debate constructively, but the fact that it is worth to apply constructive models for the sake of efficient, effective and equitable work. They also will understand that the structures acquired during learning can be used in any other interpersonal and group situation, such as debating.

Competency-based development in co-operative learning assumes that everyone has several skills, attainments and attitudes, and these are not at the same stage of development in and various learners, or even in one learner. Therefore, **based on the state of the competency of the individual**, it must be checked by the perception and assessment of the development of skills, knowledge and attitudes whether the pedagogical processes structured by us even have any kind of influence on the fields to be developed. The approach of competency-based development, which is becoming more and more widespread recently in Hungary, maybe will help to banish the stereotypical dichotomic view that describes the condition of the skills of the participants in the dichotomy of “bright student” vs. “dull student”. Competency lists published today in every kind of charts only can help teachers in acquiring a more stratified knowledge of the competencies of the participants in comparison with the stereotypical approaches. The layered, versatile knowledge and understanding may lead them on the path on which they will realise that a deeper understanding of students opens up a wide range of tools and means for them. However, in pedagogical terms, the point is not in the competency lists but the consciously efficient, effective and equitable improvement of recognised developmental needs in pedagogical practice!

Conscious development of competencies

Not only co-operation, but efficient learning also requires that learners are aware of themselves, their emotions, their responses to these emotions, their values, strengths and weaknesses, that they are able to express and manage their emotions and thoughts, trust themselves and by this, become trustworthy, conscientious, etc. – we could list the personal competencies included in Goleman's list ad infinitum. Co-operative learning **does not only build on these personal competencies** but it explicitly helps to recognise their status, conceptualise the necessary actions, and it provides learners with **particular development tools and functioning co-operative structures**.

For example, as children sum up their individual collections in the form of a “window” – in case of a group of four, a rectangle divided into four parts – they continuously confirm each one’s individual work, at each individual stage of learning.

They put individually collected items in the window – let us say, they are supposed to collect five domesticated animals individually – by taking turns. The first one names an animal (e.g. goose; they check how many people in the group have written the same item – for instance, two – and they write the name of the animal to the section which corresponds to the number of people – in our example, in segment nr. 2. The next individually collected animal is announced by the next child, and so on, until all the animals have been put down.

They all get personal feedback. On the one hand, everyone can say an animal, on the other, hand, even if somebody else says it, he can indicate that he also has it in his collection. (Of course, the results are checked in a later step – e.g. if goose counts as a domestic animal, but this is not the point here). So the window shows all the collected animals, and also the number of people that have collected each.

Every student, regardless of the fact whether they have solved the problem correctly, can explain their solution individually, they can compare it to the others’, and each one is recorded as well. It conveys the message that their work is important and always worth attention. Not only when the solution is correct! This promotes admitting strengths and weaknesses. This collective recording – in the window – is the one thing that makes it instantly obvious, at least for the peers, how I, as a member can contribute in a subject. Thus the members of my group are able to give me feedback, helping my self-evaluation concerning learning. For example when checking the results recorded in the window collectively, we discuss what the problem has been with my collection, and we find out together what we could do so that the solution becomes clear for me. This continuous group-reflecting publicity is one of the most efficient means of developing personal and social competencies.

Small groups are also very suitable for developing social skills such as empathy (recognising others’ emotions, understanding other people, sympathy, etc.) or social skills (communication, improving others, skills necessary for co-operation in a micro-group, team spirit, etc). If we think about the above example of the window technique from the aspects of co-operative and communication skills, we will see that the continuous publicity, evaluation and feedback within the group extends not only to personal skills but to the **social competencies** affecting the functioning of the group. Thus the small group as a co-operative learning structure **provides scope for the reflective and conscious development of the above competencies as well.**

In short about the principle

Micro-group structures based on fundamental co-operative principles provide a good framework for the development and improvement of personal and social competencies, however, it is important to highlight that this development needs to be consciously planned both by the organisers and the participants of learning, and it must include the levels of the individual, the micro-group and the large group alike.

1.10. Conscious development of cognitive and academic competencies; setting academic goals

- *Make use of the fact that co-operative structures are of help in practising and developing cognitive and academic competencies.*
- *Have conscious and concrete goals in cognitive areas and in the areas of learning: set accurately conceived goals, and build structures on these.*
- *Children can develop their own cognitive skills consciously as well; help them become aware how they can develop their skills.*

More effective development of cognitive-academic competencies

One of the most general limiting prejudices against co-operative learning – the Johnsons also refuted it in their fundamental work in 1984¹³ – is that co-operative learning was conceived for the sake of developing personal and social skills. It is true that these competencies are developed efficiently and consciously in co-operative learning situations. However, **its focus is the efficient, effective and equitable practice of the acquisition of knowledge**. The recognition of the fact that collectively acquired knowledge results in more efficient learning at the level of the individual as well, The co-operative means of collective acquisition make it possible to integrate the developments of personal and social competencies in the tools of thematic learning activities. In Hungarian educational practice – for us, incomprehensibly – usually separate processes are planned for developing personal and social skills and for developing learning competencies.

When in the above example children collect domestic animals into windows, they not simply learn but, in accordance with the tool of co-operative data collection, they learn to pay attention to each other; they exercise patience and understanding during the learning process, etc.

We can see now that the focus of co-operative learning processes is learning. Therefore, the third development area of competency-based development in learning together is the **development of cognitive and academic skills**. In traditional schools children are expected to practise their learning-related skills such as individual reading and reading comprehension, note-taking, interpretation and analysis, collective interpretation, etc. on their own, by themselves, merely because of their diligence, and on subjects they are not really interested in.

In contrast, co-operative learning does not make it dependent on the studiousness of the children whether they read, take notes or interpret a problem. The co-operative teacher organises processes in such a way that **the students can learn following their interests, but they only can learn effectively if they co-operate with each other**. Thus, the community expects everyone's work. One may not be interested in anything yet, but he must do his job for the sake of the others, because their knowledge and work depends on his. Due to micro-group publicity and positive interdependence everyone takes part in the collective work individually, because the others will want to use the materials processed by him during the next step. In co-operative learning, the individual learning activities are built on each other in a way that makes everyone aware of the fact that the community relies on them, too. This way everybody takes part increasingly consciously in learning together.

It is immediately revealed within the continuous micro-group publicity when someone gets stuck and cannot perform well. These are the situations when the conscious development of academic skills come in handy. When the children can see what kind of skills they need to have (for example, because the roles distributed to them are about these), then, learning together with their peers, continuously watching them, they can observe these competencies all the time, what is more, directly in operation – by watching their peers! If they also get feedback and help from their peers, then we can **set actual goals of developing academic and cognitive competencies** without fear.

Thanks to co-operative learning, **90-95 percent of students work actively** during the learning period, as we have already mentioned (they take notes, read, analyse, ask questions, etc.). The teacher builds on that when planning what competencies to develop by what kind of tasks in the group (e.g. note-taking, highlighting key points, etc.).

However, it is important to note that this activity becomes empty and schematic if it does not integrate the spontaneous and conscious needs, expectations, development ideas and needs of the participants, that is, if it is not flexible and open enough to participants (see the first principle).

¹³ They dedicate a whole chapter to rebut the myths around co-operative learning. The above misbelief is also included in that chapter. (Johnson, D. W. – Johnson, R.T. – Holubec, Ed. – Roy, P. i. m.)

It frequently happens in case of beginners' co-operative lessons that the teacher does not involve children in fact, because she does not build consciously on their interests, spontaneous and conscious feedback. Unfortunately, on-going work becomes boring very soon these times.

If the teacher continues to "think instead children", micro-groups sooner or later will get bored of having to assist at the teacher's "lecture" with continuous work. In these cases 'co-operative learning' will be a swear word in students' language.

The significance of co-operative roles in conscious competency development

We assign roles in the group, like in a dramatic play. Everybody has a role; each person a different one. Roles are grasped through the competencies to be developed.

For example, if I want to improve co-operation of all the social competencies, then there certainly will be an Encourager in the group, who will control the window. If I want to improve focussing and staying on task, then there will be a Taskmaster, whose will have to keep the group on task. For them, I can even prepare a task draft on the wall, written in large letters: their first task will be to copy it. Later, when they have already written down a few drafts like this with the others – either copying my drafts, or in different ways – they themselves can prepare it. Thus I will not only help the development of focussing but preparation for it, etc.

Individual development plans can be integrated in the roles as well. That bright but very quiet girl will be the Encourager: her role requires her to talk to everyone in her group, I will provide her with tools for communication as well.

If the Encourager sees that someone has not commented on the subject to be discussed yet, she needs to stop the conversation and say: "Every opinion is very important, so let's hear ... (their peer), too!" It will be strange for her at the beginning, obviously – like when an actor first savours her role – but it can be of great help for a child who does not usually start conversations. The point is that the helping attitude must be actually there, outspoken and giving opportunity for speaking, not only in phrases.

I would give the role of the Reader to the student who everybody likes, because he is a good talker, but they are many in the family in a small home, they do not have books, he cannot study at home, therefore reading is difficult for him yet. If only he can read out the texts to the other, it will be in their interest to help him improve his reading skills, otherwise their own attainments will be lumbered as well. If only those ones read every time who do it perfectly, when would our talkative friend learn to read?

Academic goals in every dimension of competency

Besides conscious goals of developing competencies, the Johnson brothers also highlight the necessity of setting academic goals.¹⁴ Academic goals are related to requirement levels.

The organiser of a co-operative lesson must define:

- the **sources** related to the topic (in lists and present in the project);
- thematic **proposition of problems, aspects of approaches**;
- the **co-operative learning and cognitive schemes**, practical tools to be used during thematic processing;
- the particular co-operative means of **recording**, acquiring, **monitoring** of the acquisition of, and the improvement of the way of acquiring the detailed thematic area;
- **academic goals** must be set to each child, micro-group and class (competency goals: goals of attainment, practice and approach), that is, to record what levels of attainment, practical experience and cognitive approaches they wish to achieve individually and collectively.

¹⁴ Roger T. Johnson – David W. Johnson: *Creative Controversy – Intellectual challenge in the classroom*. Interaction Book Company. Minnesota, 1992.

The co-operative teacher structures lessons with a view to academic goals, taking personal and social competencies into account as well during planning.

We are practising basic arithmetics with numbers above 10, the groups are new yet, some children often are left out of discussions. Only a few ones have sufficient experience in the topic. I have two goals in this lesson. On the one hand, to provide opportunity for the ones already understanding the issue to teach the others how it works (with the help of previously prepared cards) – this is the academic goal. I also will try to make them practise equal participation by the structures of pairwork, pairing pairs, and jigsaw groups – social-co-operative goal. I put up the two main goals of the lesson on the wall at the beginning (Passing 10; Equal Participation), and we collect the products of the practice under these headlines, while we reflect on both targets in case of each collected item. How many students understand now passing 10, what questions have been asked, what the results are like, etc. Under equal participation we reflect on facts like what has facilitated everyone to speak, what has caused that now more people know what ‘passing 10’ means, what advantages have resulted from co-operation, what rules they would define in connection with their experience, etc. We would consciously stick to and analyse these two goals all through the lesson so that children could understand the role of following a topic, and of co-operation based on equal participation.

The role of co-operative learning in developing thinking

From the aspect of brain functions, dialogue-based co-operative learning activates neural cells in the most wide range possible. This criterion – utilising a wider range of cognitive skills during learning – has been set as a condition of high-quality learning by other researchers as well. That is to say, children will show spectacular development of their thinking and communication skills in those schools where they make use of a wide range of cognitive and communication competencies instead of passive listening in class.

In case of the much-discussed simple window (weighted summary and documentation of individual collections), it is clear even at first sight that the children have utilised significantly more of their cognitive and communicative skills during the 10-12 minutes of the window activity than in a lesson based on the teacher’s presentation. At first, they had to utilise their memory and/or problem solving skills to collect items – since they knew that their peers would ask what they had collected (positive interdependence!); then to grasp it in concepts and record it in writing. During collective work they needed to present their collections, interpret them for the others, analyse them logically, whether they meant the same as the items others have written, etc.

Of course, depending on the topic, these cognitive tasks can be either deeper or more simple on the basis of the progression of the groups, but their cognitive and communication skills will be utilised anyway, thus each individual learner can practise them – and that is the recommendation. Co-operative learning structure itself organises learning in a “brain-friendly” way: the structural framework itself contributes significantly to the development of cognitive and academic competencies. Where it has been introduced, each child’s average achievement has grown significantly, regardless of social background. The academic gap between children with different social backgrounds have been reduced radically, moreover, disadvantaged ones performed even better, thus catching up with their peers – learning more effectively together. Children learning this way obtain more deeply imprinted, applicable and adaptive knowledge, they are able to establish good working relationships with ease, thus receiving more efficient education in terms of career and work.

Development of cognitive and learning competencies must be paid attention consciously so that children would be able to take part in their own learning practice. Development of thinking or cognitive competencies are promoted by co-operative learning itself, which grants via structural means that every child takes part in development at school and has access to development and

improvement. On the other hand, learning-methodological or thinking-development models can be applied as well; such practical models that can be easily used at the given age. Introducing and practising such models within the co-operative framework means that in contrast with traditional development at school, we can promote the efficient, effective and equitable cognitive development and academic achievement of every single child by means of two additional dimensions (co-operative learning; competency-based development).

In short about the principle

In summary, micro-group structures based on co-operative principles can provide a good framework for development of academic and cognitive competencies, however, this development must be the result of a carefully planned process by both the organisers and participants of learning, and it must involve individual, micro-group and large group levels alike.

Chapter 2

THE SIGNIFICANCE OF CO-OPERATIVE MICRO-GROUPS

The basic concept of co-operative learning is structural, since it transforms the organisation methods of learning and teaching creating basic structural units: micro-groups... while, at the same time, also transforming our frameworks of thinking about learning...

2.1. What is a micro-group?

The topic of micro-groups deserves an own volume, however, here we only can reflect on the significance of micro-groups from several aspects. Fortunately, this topic is not unfamiliar for Hungarian academic discourse, thanks primarily to Ferenc Mérei's widely known sociometric model. It seems the notion of micro-group was justified in Hungarian pedagogical discourse by the verification of this model.

However, the co-operative term 'micro-group' is different from the one used in sociometry. By micro-group, sociometry means the smaller units of 4-6 people outlined in sociometric tests, *developing spontaneously*, based on mutual relationships.

In contrast, in co-operative learning micro-groups mean the basic units (2-5 people) of co-operative structure, *established mainly in a controlled way* within the large group. Co-operative learning can be regarded as micro-group structured in this respect, since it applies learning structures based on micro-groups of 2-5.

In the following, we only can show how manifold the significance of micro-groups may be in co-operative learning. We use the term 'micro-group' here, although we consider the term 'small group' as adequate as the former one. However, in Hungarian pedagogical discourse 'small group' is generally used for a group with less members than a class (10-15 people), which is also called a small class.

We think that in some time 'small group' will refer to micro-groups of 2-5 exclusively, as this process has started in certain semantic fields of the expressions 'small-group education' and 'education based on group-work'. As we mentioned in the introduction of this handbook, therefore we use the terms 'micro-group' and 'small' group as synonyms for co-operative micro-groups of 2-5.

The expression 'micro-group' suggests that in pedagogical practice we can obtain advantages similar to the revolutionary advantages of microchips, with respect to efficiency, effectiveness and equity. Micro-groups are the essence of co-operation; *if co-operation works in the micro-groups, it will work in the whole class.*

However, it does not develop spontaneously; in co-operative learning **we consciously provide the participants with tools and activities with the help of which they learn to give and receive feedback on their and their peers' learning and attainments in an authentic way.**

2.2. Micro-group as a basic co-operative structural unit

As we have seen, the **basic structural unit** of co-operative learning **is the heterogeneous micro-group** (of 2-5 people). Not the micro-group as a 'small mass', but as a group-structuring framework that enables students with different abilities, cultural and social backgrounds, sexes and even ages to work together efficiently, effectively and equitably to achieve their collective and individual goals.

Micro-group is the **framework** of co-operative learning, and, at the same time, its **opportunity** as well. A human-scale framework in which the individual does not vanish amalgamated into the community, but without which it is impossible to take part successfully in the individual or collective journey to knowledge. It is a co-operating micro-community space where everyone has

the opportunity for personal co-operative outlets, individual and common success, if the fundamental co-operative principles prevail.

Therefore, in co-operative structuring of learning, we have to **plan** pedagogical processes down to **the level of the individuals sitting at the same desk**. That is, during planning, we have to keep in mind who will do exactly what at this imaginary desk. The practical principles, attitudes, personal, social and cognitive competency models, techniques and structures of co-operative learning help to implement this aspect. If we handle the small group in the same way as the large group – for example if we give the same general instructions such as “discuss”, “evaluate”, “solve” etc. – co-operation will not be granted. In this case, co-operation is left to spontaneity, only the relationship is permissive here, while in – however, misunderstood – frontal teaching spontaneity is forbidden. However, spontaneity in itself does not contribute to the development of the skills necessary for co-operation, nor, consequently, to equal access. Moreover, in case of groups without any intention for co-operation, it will rather lead to constrained or unconstrained roles of free riders and workhorses, in Kagan’s terms. In contrast, we have to plan learning structures and activities at the level of the micro-group and in a personalised way, so that **spontaneity** can meet **individual and collective learning needs and demands**.

Micro-group as the basic structure of learning together structurally deconstructs the hierarchical, logocentric and teacher-centred education, since parallel interactions in the micro-groups within the class eliminate the monopoly of hierarchic control of attention. The main guideline of learning is not the teacher’s speech, lecture and testing. Of course, there are moments or periods when all attention is directed towards the teacher even in co-operative learning (but this attention must be founded). Co-operative learning has a participant-centred aspect, that is, it regards it as professionally and scientifically grounded that participants must be involved in the pedagogical process, thus creating a determining basis of learning together. Therefore it does not stop at the moral propagation of co-operative principles but **creates structural guarantees for the efficient participation of each participant in the mutual process of learning**. One of these guarantees is that it creates a micro-group structure based on fundamental co-operative principles in the class during co-operative learning, thus participants can be involved and have direct access to their peers’ knowledge and to the resources offered by the teacher.

It is true, however, that one of the sources of knowledge is listening to a master whose each expression is teaching in itself. But are we teachers all such masters of teaching...?

Micro-group structure in co-operative learning **allows for partnership between participants**. Their relationship is equal in terms of access to knowledge. (That is another issue where each individual is on this path.) The point is that **everyone needs to have a chance** to express themselves, have ideas, ask questions, make mistakes, correct them, etc. That is, **participation in the process of learning must be granted for everyone by structural means**. The personality of the teacher has a significant role in learning, but the role of the personality of children is just as important. Therefore their personal and actual participation cannot depend on the fact how many students the teacher has capacity to pay attention to. In a group of thirty the teacher needs to find partners to structure learning together. It may come as a surprise, but these partners – the children – have always been there, but it depended on the teacher to what degree they could become partners. Participation in learning together must not be left to the fancies of personal contacts with the teacher. We do not state here there is no need for personal contact with the teacher. On the contrary, we think the opposite way. As Niel also claims¹⁵, it is necessary to spend some time with each student separately in order to establish personal relationships. However, **the personal relationship between student and teacher cannot be the exclusive source of development during learning together**.

¹⁵ Alexander Sutherland Neil writes in his famous book *Summerhill*, to which, among other authors, Thomas Gordon refers to as a volume he learnt a lot from, about his personal „therapeutic” conversations with each student as a significant and essential element of his model which takes children’s mind into account and is based on spontaneity and following interests freely.

Micro-group is the substantive space of personal and social behaviour. Where our elbows touch, where we can see into each other's learning customs, there always will be an opportunity to hone our personal and social skills. **Development of personal and social skills is not the target but a tool of co-operative learning.** The more a person is aware of himself and the more he is able to establish harmonic relationships with his peers, the more efficient learning together becomes, and consequently, individual learning as well. But the micro-group needs to implement fundamental co-operative principles concerning attitudes, competency development models and the means promoting practical achievements, so that this path of development can be accessible for everyone.

In order to develop cognitive skills, everything that has been planned at the level of the whole class needs to be brought down to the level of individual micro-groups. This way we can determine who does what and how, and to what depth they would be involved in learning together.

When planning co-operative learning structures, we must have a single imaginary micro-group in mind during work. It is not enough to plan how we would divide the materials to be covered by the groups, we also need to see how everyone will be able to take part equally and to access others' knowledge equally, step by step, including ourselves, the ones who structure learning.

If it is not concretely planned who will do what, then the micro-group will not grant the implementation of fundamental co-operative principles, therefore co-operative structures/techniques must be applied within the small groups as well. In an experienced co-operative group, where the appropriate personal and social skills already have been developed, the learning process does not need to be planned step by step, because group gestures are automatic. But in structuring co-operative learning and at the initial stage of development it is very important to plan who does what within the micro-group.

In summary, we would like to highlight that micro-group structure is a key issue, but the implementation of the principles are in the focus. That is to say, learning in small groups does not necessarily mean learning co-operatively. **Micro-group structure is markedly useful for the children to experience observing the basic principles in groups of 2-5, to experience its advantages and to apply them later adaptively, that is, in new situations.** Therefore it is advisable to grant co-operation between group members and groups by well-known and described co-operative structures/techniques initially so that the principles would be surely implemented, while later only the implementations of principles will be a key aspect, and newer structures are created on this basis.

2.3. Micro-groups as the personal space of learning together

Guarantee for being addressed

"In a group of 3-4 I have the opportunity to take part in learning processes in my whole person – my posture, mimic, aura, smell, etc." This group size means the scale and confines the space in which students can access the sources of knowledge safely: either their peers or other means of acquiring knowledge.

Granting personal presence is a guarantee for spontaneity as well. **Spontaneous feedback, ideas, solutions open up new personal resources of the individuals working in a micro-group.** Therefore co-operative learning requires an environment where **the space of micro-groups comply with the criteria of personalness and personal expression.**

However, this personalness is only possible in interpersonal relations, that is why **it is expedient to start co-operative work in micro-groups of 2-3;** this grants "being addressed". This scope of personalness aimed at co-operation requires interpersonal publicity, in other words, each participant needs to be paid attention to by at least one of their peers. **Group roles and structures help everyone to enter the established space.** Co-operative structures almost always initiate their

series of steps at the individual and personal level; at a stage of personalness where there is no need for publicity because the individual has to draw on himself (on his own knowledge, experience, approach and emotions).

The purpose of Rally Robin is often misunderstood when the teacher asks a question and suggests answering it in the form of Rally Robin immediately. Rally Robin always starts with individual work. Enough time is provided for everyone to collect their answers (or, if they do not have any, their questions) individually, and Rally Robin only starts only then – and we will instantly know how many members have the same answers (or questions). Rally Robin started with instant answering also can have a sense, for example when I want children to practise arithmetic sequences, but even then I would reserve the right of passing and asking back!

Micro-group publicity is primarily called personal from the point of view that it grants a more personal presence in comparison with the publicity of the large group based on the teacher's presence and communication. It is true even in the most extreme cases, because a person's behaviour is observed by at least one peer (even if it refers to the fact that the person does not want to co-operate), so there is a chance to give a response to it with the help of the teacher and the peers.

Micro-groups, providing continuous publicity, **grant the continuous publicity of learning and attainment by structural means**. Learning-centred approach starts from the actual state of the learning community, and plans the processes of development and eliminates the factors hampering learning in relation to them, so that participants would be able to be involved in the processes of learning and self-development with their whole personalities.

In a class of 30, during the activity traditionally called frontal class-work, the teacher is unable to provide opportunity for each child to ask questions, tell their ideas, to find out what they do not understand or what they have completed, etc.

However, in the publicity of a micro-group, if I am a participating student, at least one of my peers who learn with me, but rather 2 or 3 partners will know all the time what I do not understand, what I know, what I have or have not completed.

The micro-group based on co-operative principles **complies with the democratic principle of subsidiarity structurally as well**: it provides continuous opportunity for every participant to express themselves, that is, to ask questions, make decisions, take or not take on tasks in learning together. All members' questions, ideas and interpretations related to learning and knowledge, and their performance is publicised, at least for one or two peers. **This micro-group publicity of peers also forms the co-operation of the group in the spirit of co-operative principles**, and the personal involvement and responsibility of the individual members.

Micro-groups and the co-operative principles, structures and roles operated within them **divide the rights, obligations and responsibilities** also existing – and primarily taken by the teacher - in traditional structuring of education -, **and delegate them to a lower level, namely, to the level of the small group – also in accordance with the democratic principle of subsidiarity**. That is to say, the more emphasis is on the rights and obligations of actors (here the students), the action process (in our case, learning) is the more democratic. Co-operative learning is able to grant this by a concrete system of tools. However, we must be aware of the fact that this involves a significant change in the role of the teacher. **That is, the teacher plays preparatory, organising, co-ordinating, model and monitoring roles.**

“Staying on task”, “making the most of the time limit”, “preparing written tasks” and “intense participation” take place at the same level as the interaction of acquiring knowledge: within the micro-group. These activities are granted to be realised by the continuous publicity provided in structuring; either within the micro-group or between small groups.

If we want to think over our work as teachers in terms of the criteria of quality education, we must ask the following questions: Am I able to grant on my own that each student deals with the topic of the lesson? Can I make everyone complete their written tasks? Can i see how they make use of the time? Do I plan and convey learning processes in a personalised way?

Of course one single person cannot be expected to meet all these demands in a class of 25-30, or even less, even if she makes huge efforts, while the 25-30-strong human resource is “wasted”, although they could help with the task. Thus, democratisation does not only makes the process equitable, but it also increases efficiency (maximising the exploitation of resources) significantly.

Co-operative micro-group-based structures **allow us to grant democratic and personal articulation of needs, interests and values in a mass of any number of individuals.** In the micro-groups everyone can represent themselves, their families and culture, etc. with their whole personalities.

A system of practical co-operative principles and tools may be the practice that miniaturises the efficient and effective forms of democratic societal behaviour in co-operative micro-groups. Micro-groups **provide personal access to the achievements of co-operative democratic coexistence.** The same way the collective human culture is made personally accessible by bits, microchips and memes (with the help of computers), organic and democratic networks of co-operative micro-groups could make the real scenes of practising democratic publicity, behaviour and popular sovereignty personally accessible.¹⁶

In summary, we highlight the fact that **for granting personalness, micro-groups are necessary, indeed.** However, within a micro-group, parallel small-group publicities are created, which in themselves do not grant personal involvement in the learning process for everyone (see Kagan’s “workhorses” and “free riders”). In order to achieve personal involvement, co-operative principles must be implemented within the micro-groups, with the help of co-operative techniques/structures. **Structuring, developing and improving publicity within micro-groups is one of the most important purposes of co-operative group development.**

2.4. Micro-groups as the space for continuous, conscious and spontaneous feedback in learning together

In learning, **one of the most important tools of competency development is continuous feedback or reflection.** This can be provided by peers working on the same subjects as usefully as by educators. If they are unable to convey their knowledge to their peers, or if they cannot answer their questions convincingly, it is clear that they need to improve their own knowledge, and that we cannot say that they have thorough knowledge of the subject. It also becomes clear that peers’ questions, although resulting from not understanding something, moves the group forward – together with the members’ individual knowledge. **We must consider students competent in solving their own problems; we have to believe in their self-actualising tendencies to which the micro-group provides a framework.**

Several facts can be mentioned as deficiencies of traditional means of feedback. For example they do not enable students to give feedback on their knowledge frequently enough (it is enough if we think about the frequency of tests). Checking is quite random, too (let us think about the choice between picking students who volunteer a lot and those who almost never put up their hands). It is also important to note that feedback between student and teacher is much more characterised by supervision than by the expression of partnership.

¹⁶ E. F. Schumacher’s book *Small Is Beautiful* (Harper and Row. New York, 1973.), which is considered a basic volume influencing ecological thinking also writes about the necessity of humane, human-scale, „small” technological and social systems.

In a co-operative class the peers learning together are continuously present, they are accessible, they can be addressed, and sooner or later they routinely share their knowledge, ideas, doubts and deficiencies... etc. And in doing so they do not depend on the teacher. At the same time, it is a crucial question whether educators become aware of the fact that **the more they focus on creating a community which is able to give partnerial feedback, the more effective they will find the time spent on academic subjects.**

Many teachers claim that they do not have enough time for the development of the group because they would “lag behind with the curriculum”, while, at the same time, adding that only few children keep up with the pace of lessons. So they keep struggling with most of the children – or, in a more fortunate case, only with a few of them – during teaching. In co-operative learning the question that is raised is not whether the children pay attention to the subject, but which of their abilities and skills need to be developed so that everyone would pay attention to the subject and improve their skills and knowledge in the class. However, for this **it is essential that participants can give feedback to each other more and more consciously and to learn to comprehend and digest feedback from their peers and teachers.** Such feedback is necessary in which participants learn on their own what they need in order to improve and learn more effectively.

We can regard feedback as authentic in the pedagogical process when participants understand, process and applies those changes and modifications which they need for the sake of successful development, and which they are able to make conscious during feedback.

Within the space of the micro-group, in its physical closeness, **members can perceive each other's learning habits and behaviour, patterns and schemes** with each of their senses. During continuously shared work **spontaneous sampling and copying** takes place, formed by the already existing abilities of the members of the group. This is why the monitoring role of the co-operative teacher is very important. Thanks to the learning structures based on the fundamental principles, the opportunity for activity is inspiring for every child, however, it may happen that some participants do not want or are not able to co-operate. Sometimes the planned co-operative task is interrupted because of deficiencies or conditions related to social skills (e.g. an unresolved conflict within the group). In such cases the learning activity continues in the other groups, while we focus on the spontaneously emerging development task in this group and provide them with concrete conflict management techniques; in other words, we shift focus, and another developmental activity takes place.

In novice micro-groups it often happens that when important elements need to be highlighted in a conjunct collection (dates, formulae, historical correlations, etc.), the group members cannot agree upon which four most characteristic items to underline together. While the other groups complete the task within a given period of time, in one such group everything is stopped, or they engage in fierce debate and have not underlined anything yet. The condition in this activity is that only those items can be underlined on which everybody agrees. If there is no consensus and a conflict emerges, we can offer a by-pass: each group member can suggest one item to underline, which must be accepted and represented by the others as the four essential items found by the four of them. They can decide the question by weighted voting or other co-operative means.

The educators provide behaviour models themselves, mostly by assembling roles, tools, tasks and instructions. This way the continuous learning together in micro-groups helps the development of personal, social and cognitive skills, **based on actual learning activities and their experiential knowledge.**

In summary of the above, we wish to highlight that **the publicity of micro-groups needs to be utilised for developing and improving peer feedback, with the explicit goal of making interactions related to learning as efficient and effective as possible.** The time dedicated to feedback is of key importance and requires particular planning by the teacher. Educators must find out what kind of models and strategies they introduce in order to generate authentic feedback. When choosing models to be introduced/applied it is expedient to take the findings of cross disciplines (psychology, educational sociology, social psychology) into account as well.

2.5. Micro-group as the community core of learning together

The development of the micro-group

Micro-group, as a structurally granted personal space **allows for the manifestation of group-cohesion forces**. The small group can evolve into a community or team very soon, if we continuously assist its development by appropriate means. The continuous publicity of the micro-group, which is an important tool of developing personal and social skills, enables students learning together to become partners whose **shared goal** is – among other things – to **achieve each of their individual and personal learning goals**. In this personal space participants not only can represent their values, opinions and culture, but for the sake of mutual learning they help each other participant to articulate these. Thus, getting to know and accepting each other, applying the tools of co-operation and conscious competency development, micro-groups mature into small, co-operating communities, which will be one of the bases of the co-operation within the large group.

The principle of equal participation in co-operative learning also means that sooner or later each person must work with everyone else in the group.

For example, in jigsaw, the members of the micro-group get parted and deepen their knowledge in different fields with the members of other micro-groups, then, returning to their original one, they put together the knowledge they obtained somewhere else. These are called “expert groups”, since the persons coming from different micro-groups work on a subject together. Here any one person works together with the members of at least two or three other micro-groups. So we have an opportunity to create any number of temporary groups in addition to the original ones. Thus everyone can work together with everyone else even within on project.

It may happen that children cannot co-operate because they have not acquired the usage of co-operative tools yet. Co-operative learning does not presume that everybody is able to co-operate, therefore it provides them with applicable tools for co-operation. The educator structuring learning in a co-operative way facilitates the development and improvement of the skills necessary for co-operation by structuring the processes and structures of learning in a way that renders co-operation unavoidable.

For instance in the above example of jigsaw, when everyone leave their micro-groups – e.g. in a class of grade four to study different domesticated animals – any person’s knowledge will only be complete if the group members share their knowledge with each other. However, we need to give them tools for sharing it: e.g. they can record items in a group chart such as the number of legs, diet, size, where they are kept, etc. This way everyone’s knowledge is revealed and they can access it equally. Wee can see that here they study animals together. This enables them later to simulate, plan or observe biological communities, and to deepen their knowledge by studying the acquired elements in their ecological relations. (What a barn-yard, domestic pig keeping, the fauna of a stream is like, etc.)

When planning groups, we also have to take the children as our starting point. **The development and improvement of the groups must be based on their versatile personalities. Therefore we always must keep heterogeneous groups in view in co-operative learning!** Manifold understanding students in several dimensions is capable of optimising this heterogeneity. One such dimension is the status of the children’s personal, social and cognitive competencies; the other one is their personal value preferences, and the third one is the sociometric status of the large-group. Further personality and group dimensions could be enumerated here, but the key point is that the human resources of the large group must be divided proportionately and in a parallel way into micr-groups.

For example, if I have performed a sociometric test which shows who individuals want to be in the same group with, and I also have surveyed the interests of the children, I will certainly be able to put any child in a group with at least one other they like to be with or with whom they share an interest. I strengthen the cohesiveness of the micro-group by planning this way.

In summary, we could highlight that **micro-groups also can be the means of developing and improving community in the class, if the teacher consciously improves co-operation within micro-groups**. Micro-groups can be set up as really heterogeneous groups by educators who know their students well, which ensures smooth co-operation at the initial phase of applying co-operative structures. The aim is to bring each student's social competencies to a level at which even random group-making cannot endanger co-operation.

Groups must be kept together in each learning project or topic at least until their first joint success. They must not be separated even if they cannot co-operate. That step would convey the message that co-operation depends on the assembly of the participants.

2.6. Micro-group as the guarantee of individualisation

Learning processes thought over on a scale of 3-4 people **allow for planning personalised forms of learning and behaviour**. We plan simultaneous processes within the micro-group accurately, taking each child into account individually. It is easy to characterise different tasks along their roles.

If we want children in an inexperienced co-operative group of 4 to solve a reading comprehension task, we will need a Taskmaster who keeps the group on task; a recorder who co-ordinates the recording of anything the group has found; an Encourager who takes care of equal participation; and a Timekeeper who structures the efficient utilisation of the time available. The encourager will be a person that is already good at reading comprehension, since he also will be able to pay attention on the others' participation. The recorder will be a student who has difficulties in writing or taking notes. I also can differentiate between tools related to roles even in different groups. The Recorder of group one can use charts well, but wording is difficult for her. I will give her the task of note-taking not in the form of a chart but as incomplete sentences. In another group, the Recorder is only able to take notes with the help of an interpretation chart. In the third group I would like to improve the Recorder's creativity, so I put a question dice on their desk, and they will have to answer random questions- generated by throwing the dice – based on the text.

In order to differentiate between identical roles it is **necessary for the teacher to continuously monitor children's activity**, so that she is able to notice progress and stops and react to them with providing the appropriate functions, resources and aids.

Since students in a micro-group developed and operated on the basis of co-operative principles surely will take an active part, individualisation take place mostly in an automatic way.

It often happens even in case of frontal teaching that most students understand the task, but four or five children still do not. If I go to them separately to explain, consequently the one will start working on the task at last who has not understood it and to whom I arrived last. In co-operative learning, however, when someone does not understand a task, he can ask his partners immediately, and gets an instant response to his individual questions or misunderstandings. That is, in co-operative learning the same five children can get immediate answers from each other at the same time, with a minimum loss of time; not to mention the fact that explanations by peers sometimes promote understanding more easily than teachers' explanations. In co-operative learning we direct those who have questions to their group members, and if the whole group has a question, first we direct them to other groups.

Approaching it from the other side, those who know the solution or recognise some essential relation can present their thoughts, solutions or extra knowledge arising from their interests instantly in the micro-group. It does not depend on the fact whether the teacher picks them or if someone else has told the solution before, as in traditional frontal education. In other words, those who have progressed further in some field and those who are encumbered equally have the chance for spontaneous individualisation.

It is important to emphasise that the personal and social competencies of participants are necessary for the smoothness of spontaneous or automatic individualisation, so we must pay attention at the beginning and make sure that students really help and listen to each other – well-thought co-operative structures help in this.

Individualisation is not the children's task but of the teachers' structuring learning; they are the ones who have to **individual development plans for each student** for the sake of high-quality education.

It is a frequent mistake when educators take individual plans from special education teachers, and they only apply them in case of children with learning difficulties. Students who progress well ahead walk as individual a path as their peers with difficulties, therefore individual planning is necessary for them as well. Another common misunderstanding is that development mainly concerns competencies of learning; while the total personality or other dimensions of the personalities (e.g. personal, social and cognitive competencies, spatial, musical or physical intelligence) of students are neglected; when, in fact, if we want to involve students in planning and realising individual development, we have to address their personalities as wholes, and we have to respond to their whole personality in our plans. Children's strength are also often omitted in planning, although some strength can be found in any child if we widen our horizons of knowing our students. Planning based on their strengths is especially useful in co-operative learning, since that is how I can concert the different resources in the class and assemble heterogeneous groups properly. Finally, personalised development plans need to be recorded in a way that the goals and tasks, activities and resources are clear for students, their parents and other teachers alike.

In summary, we can see that the well-structured micro-group – thanks to co-operative principles, attitudes and methods – **grants the realisation of individual development plans permeating down to the level of the individual**. A part of the individualised development takes place automatically and spontaneously, even without the attendance of the teacher. It is especially true for groups progressing ahead in co-operation. Teachers are the most efficient when they think about what tasks, activities, roles and functions help the most in the development of each single student.

2.7. Possible options for creating micro-groups

Micro-groups always must be consciously planned in the beginning so that each small group can be diverse! Creation of the groups must be followed by group development, team building. Without these we cannot be sure about the effectiveness of learning.

The ultimate aspect of the creation of micro-groups is the even and parallel distribution of resources, i.e. heterogeneity. Micro-groups structured as the basic units of co-operative learning can be established either in a guided way or randomly. However, forming such groups is not a sufficient condition of establishing co-operative micro-group structures. After forming them, they must be matured into teams, that is, group development or group processing is the following step. This development is realised in the form of continuous and authentic feedback in co-operative learning. It is facilitated by group roles and co-operative structures and techniques.

Random group-formation

In case of **random group formation** there is an equal chance of creating homogenous and heterogeneous groups. Occasionally we are necessitated to apply random group formation methods, especially when we have no prior knowledge about the group, we do not even have an opportunity to obtain prior knowledge, and we spend such short time with the group that the time spent on thoroughly coming to know them would not pay off.

Some examples of random group formation:

a) Random role jigsaw

- Prepare tools and materials corresponding to the roles to be used (e.g. role cards with the name of the role; or cards or markers in different colours). Pick as many roles as the number of people in each micro-group; and as many cards of each role as the number of the micro-groups to be formed. (That is, there will be as many role cards in total as the number of people in the large group).
- Everybody in the room randomly picks or chooses a tool (a card or marker).
- Participants walk around the room and find 3-4 people with different tools.
- Groups formed this way sit down and get to know each other.

b) Random group formation with collage jigsaw

- Choose as many pictures related to the topic as the number of intended micro-groups.
- Cut the pictures to as many parts as the number of people in each micro-group (that is, there will be as many pieces in total as the number of people in the large group).
- Each participant picks a piece.
- Participants walk around the room and find those people who have complementary pieces.
- Groups formed this way sit down and get to know each other.

c) Random interest jigsaw

- Divide the subject to be dealt with to as many subtopics as the number of intended micro-groups.
- Prepare as many copies of a subtopic as the number of people in one micro-group.
- Write the titles of the subtopics onto paper strips (that is, there will be as many strips in total as the number of people in the large group), and put them on a desk that can be walked around.
- Each participant chooses a strip according to their interests.
- Those who have chosen the same subtopic find each other and form a group.

Guided group formation

Only **guided group formation** can unambiguously ensure the aims of co-operative learning: the interactive learning process in heterogeneous groups and the corresponding development of competencies. For guided group formation we need to have prior knowledge about each student and about the whole group as well. Well-thought and well-planned group formation requires thorough preparation from the teacher, based on the below points.

- The teacher must know what kind of knowledge, skills and abilities each student has in a given field. The assessment of these does not only help group formation, but it serves as a starting-point for differentiating and individual development in co-operative learning.
- Making the sociometry of the class concerns group formation from the aspect of the tasks of continuous group processing. We need to know who the students are able and willing to co-operate with, who are in the centre or on the periphery.
- We also have to take the even distribution of gender, ethnicity, religion and social status into account, also focussing on heterogeneity.

According to the above, a heterogeneous group can be regarded as ideal – in case of for participants – in the following case.

- Concerning the given field, there is an outstanding student, one in need of significant help and two others with average performance.
- We exactly know about the relationship between the members. (Putting “archenemies” or “best friends” in a group may be feasible, but in this case group development needs to have more emphasis for the sake of continuous and balanced co-operation. However, at first it is more expedient to encode less challenging group development aims into group formation.)
- There are both girls and boys.
- The group is diverse concerning ethnic, religious and social background.

Some examples of guided group formation:

a) Guided role jigsaw

- Prepare tools and materials corresponding to the roles to be used (e.g. role cards with the name of the role; or cards in different colours). Pick as many roles as the number of people in each micro-group; and as many cards of each role as the number of the micro-groups to be formed. (That is, there will be as many role cards in total as the number of people in the large group).
- Write the names of those you intend the roles for on the back of the cards.
- Everybody picks or chooses a tool (a card with the name turned down).
- Participants walk around the room and give the card to the person whose name is on it.
- When everyone has his or her own card, they find 3 or 4 people with different role cards.
- Groups formed this way sit down and get to know each other.

b) Guided group formation with collage jigsaw

- Choose as many pictures related to the topic as the number of intended micro-groups.
- Cut the pictures to as many parts as the number of people in each micro-group (that is, there will be as many pieces in total as the number of people in the large group).
- Write the names of those you intend the roles for on the back of the pieces.
- Each participant picks a piece.
- Participants walk around the room and give the card to the person whose name is on it.
- When everyone has their own piece, they walk around the room and find those people who have complementary pieces.
- Groups formed this way sit down and get to know each other.

c) Guided group formation with silent symbol finding (symbol jigsaw)

- Choose as many symbols (star, circle, square, cross, etc.) as the number of intended micro-groups.
- Copy the symbols of small pieces of sticking paper or post-it notes, in correspondence with the number of people in each group. (For example, in case of groups of four, four pieces with a star, four pieces, with a circle, etc.)
- Participants sit in a circle meditating or focussing on silence with their eyes shut.
- Gently stick the same symbol on the forehead (or on the back) of those belonging to the same group, based on the prepared list.
- when everybody has a symbol, participants can open their eyes and try to find their group. There is only one rule: no talk!
- When the groups have been formed, it is worthwhile to ask how they could decide where they belong. (No one would be able to find their own place without the co-operation of the others.)
- Groups also can be formed if four different symbols have to belong to one micro-group of four.

Chapter 3

COOPERATIVE ROLES

3.1. The significance of cooperative roles

Cooperative learning, as we mentioned above, **is based on the uniqueness, singularity and unrepeatability of our personality, that is, on our individualistic character**, and organises its processes along the competencies of the individual (knowledge-experience, skill-practice, values-attitudes, and meta-competencies) to be developed. Individualisation, according to the research for example by Harold Wenglinsky¹⁷, is one of the important components of quality education. This component raises the question whether we are **able to organise our education and teaching practice in a way which satisfies the individual development needs, wants and interests of the students**.

In this respect, the cooperative roles, besides the structures based on principles, seem to be the most suitable forms. Cohen et al emphasize that it is no use integrating kids from various social status in a class if the lessons are still held in the framework of the traditional education. In such a situation the disadvantaged kids take up the social roles assigned to them within the class (“weak and lazy”, “weak but diligent”). This, however, is due to the highly inefficient and unfair structural conditions of organising learning: applying the classic frontal teaching approach the teacher organises their teaching practice in relation to the best students, therefore it is only them who “are reading the teacher” (while everybody else is just struggling as it is impossible to pay attention to so many kids alone). **The key issue** therefore is **how to organise the collective learning of kids and what roles and situations our public education and the everyday teaching practice offer to them in the classroom**.

The models of cooperative learning offer roles which help kids break out of their disadvantaged situation¹⁸. At the same time, with the help of these roles the competencies of disadvantaged kids are developed more efficiently regarding either their knowledge, personality or social competence.

The research of the past forty years have proved that besides cooperative structures, cooperative roles have similarly great importance when it comes to the smooth organisation of learning.

3.2. Cooperative role as a rule of behaviour

It is strange to speak about cooperative roles in relation to unique, unrepeatable and personalized development. In fact, what we need here is to somehow harmonize cooperation manifested in individual learning and development and providing a scene for it. Here, **the role appears as a function, rules of behaviour and a model**. One assumption is that people’s aptitude, with the exception of extreme examples, cannot be improved. The other is that it is especially true regarding social relations. Thirdly, psychology has already revealed that human behaviour is able to follow well-defined personal and interpersonal patterns of failure, independently from the individual’s social status. If this is true then in the field of teaching practice we need communication and

¹⁷ Besides individualisation, Harold Wenglinsky emphasizes the use of higher cognitive and thought schemas, cooperative learning and authentic feedback as the characteristic features of quality education in his research report *How teaching matters – Bringing the classroom back into discussion of teacher quality*. Education Testing Service. Princeton, 2000. In relation to the “higher cognitive and thought schemas” used by Wenglinsky it is important to note that the literature on psychology and cooperative learning questions the hierarchic approach of cognitive skills and instead speak about the widest possible use of schemas and forms suitable to improve and grasp cognitive skills. For example Spencer Kagan in his work: *Rethinking thinking*. (Kagan Online Magazine, 2005. <http://www.kaganonline.com/KaganClub/index.html>.)

¹⁸ The significance of roles is emphasized by the Johnson brothers and Kagan also devotes a separate section to it in his book *Cooperative Learning*.

cooperation tools – roles, for example – that can be shaped, practiced and learned and also grasped by both imagination and practice. Among other things the dramatic approach of roles – as it can model the most unexpected human situations in practice - can be the pedagogical tool which will find it easy to suggest tools regarding cooperation built upon much simpler principles. There are communication models, confirmed by research in the fields of psychology and education, whose principles, similarly to cooperative learning, were revealed and introduced in the 1960s and whose efficiency and fairness regarding the development of interpersonal relations, interpersonal communication and cooperation are proved by fifty years of research. These models provide important help regarding the creation of the patterns of behaviour for these roles.

In a cooperative group **every member plays an equal role**. The relation among the different roles is cooperative and not hierarchical. Equality is guaranteed by a rotation based on the principle of equal participation so equality is also structurally guaranteed by the fact that the roles are interchangeable among the members of the group. The roles are established along thematic/academic aims as well as along the **learning, personal and social competencies to be developed**. Instead of insisting on the roles defined by the various models, the cooperative teacher may, or rather, must come up with newer and newer roles to achieve his educational-development aims as precisely as possible. The names of the roles and the groups assist the identity development of the groups and individuals.

When the members of the group are assigned a new role, first they create a role card for each other in pair work or in threes. The point is that they create one another's role card, write the name of their classmate on the card together with two features that they think their classmate possesses and that helps him to play that particular role. However, we can only count on such reflective behaviour if the members of the group know each other. (In case they are strangers everyone offers a feature for herself which they then interpret and write on one another's card.) Reflecting on ourselves and on our partners helps kids identify themselves with the role, because it unlocks resources for each participant so that together with his partner or on their own they are able to play their assigned role. This activity also reveals interfaces upon which their confidence can rely.

In the case of more mature groups – who are more congruent and have been cooperating for a longer time – they can also write down what opportunities they can see for the particular individual in playing that role and they can also express what competencies he can improve by playing the assigned role. By this they assist one another towards conscious self-development as everyone will have her turn.

From the perspective of group identity the expert groups may choose a name for themselves on the basis of, for example, a specific theme given to them in the form of a jigsaw. As in the case of the expert micro groups of the 8-9 year old age group participating in a project on domestic animals: running horses, brave dogs, lazy cats, happy mice, etc.

The other side of the role approaches from personal competence development: this is the personal and personalized side of the role.

Johnny Bart does not really like books, they only watch TV at home so he does not even understand “what books are good for”. In this case it goes without saying that he becomes the “Task Master” who is given the task to find beautiful pictures in the books borrowed from the library then collect information – pictures, texts and data – on the basis of the table of content.

It is evident that the tasks of the individual coincide with the competencies to be developed; let us call this particular case the “making friends with books” learning competence. The various levels of “making friends with books” may appear at the same time.

Similarly to our Johnny, Eve and Rob are also Task Masters but in different groups. Johnny Bart is flipping through the book about horses to collect pictures – his grandfather also keeps horses. Eve

is reading the captions already: grey – her favourite colour is grey – and collecting different kinds of cats. Rob is copying a sentence he considers important from the book on dogs – he likes keeping dogs at home. Is he possibly collecting arguments?

We can see that they are doing the “making friends with books” activity at different levels. These levels are built upon one another. After all, we also start familiarizing ourselves with a book by flipping it through...

In one of his articles Kagan highlights the importance of cooperative structures as opposed to the roles applied in conscious competence development¹⁹. According to Kagan, it is the **structure, the organisational method which has utmost importance regarding the implementation of cooperative principles**. This is true, but the roles also have structural significance. However, this does not mean that the kids get homogenized in roles forced upon them. On the contrary, the models of cooperative learning are always about the cooperation of autonomous children. **The roles help to preserve the autonomy of those participating in the learning activities, because cooperative learning accommodates and accepts those, at times very different, individuals who take part in learning.** By choosing or getting a particular role in a group he gets a chance to consciously collect the tools, patterns of behaviour, practices and theories needed to for his role during his studies, because all he has to do is to follow the tasks and character of his role. As the role provides the framework for improving the participant’s own performance, it also makes reflection much easier, because it is within the boundaries of the roles played where the skills are reflected on therefore, it is not the whole personality that is constantly “put in the pillory”, as is the case of an oral report in front of the blackboard. It is easier for a kid who feels perhaps uncomfortable in a given role to express her feelings and comments as a reaction to a given role than to express them spontaneously with no structured cooperation in small groups, not to mention the situation when she has to answer the teacher’s question, standing in front of the blackboard: “Just how many times did you read the text at home?”

During traditional group work – where equal participation is not the point because all the teacher says to the small group is: “Do the task together” – it can easily happen that two of its members who communicate well and use proactive strategies disregard the others assigning them the role of the silent listener. It may happen that the others do not even recognize what roles they are forced into owing to the spontaneously developed “power relations” because in the frontal teaching situation they are used to listening to others.

3.3. Cooperative role as structural tool

At the same time, the consciously undertaken cooperative roles are structural tools. On the one hand they differentiate, organise and build the activities of the group in a way that produces interdependence: everyone has a different role but one that completes the roles of others. On the other hand they organise the learned and experienced patterns of behaviour, including the Kagan structures, along the various roles – for example the Encourager collects the cooperative tools and group structures guaranteeing equal participation (e.g. word-whirl, window, etc.). **The use of cooperative roles provides significant help in both establishing the structures inside the group and compiling the repertoire of cooperative tools used by the participants.**

Playing the roles and making them function inside the group make it possible that – practicing the wide variety of tools - each group member and small group are able to organise their cooperative strategy and methods in an autonomous way paying due attention to the implementation of cooperative principles.

¹⁹ Kagan (Structures and Learning Together – What is the difference? (Kagan Online Magazine. Summer, 2001.) compares his own views with the teaching of the Johnson brothers about cooperative learning. He contrasts the two schools along the Kagan structures and the conscious competence development of the Johnsons.

It seems that it is the **role** which provides a structural framework for developing the personal, social and learning skills and which guarantees **equal opportunities for each participant** in a way that accommodates the whole personality.

The structures themselves do not guarantee conscious efforts towards skills development for everyone. Since if someone takes part in a Kagan structure – e.g. preparing the window together – it does not yet mean that she will do her best to achieve equal participation. At the same time, without concrete cooperative tools and cooperative – Kagan - structures the cooperative roles will not guarantee the emergence of cooperative principles inside the groups. If there is no cooperative tool in the hands of the participants that they can consciously apply, the window for example in the hands of the Encourager to summarize what the various individuals collected, then there is no guarantee that everybody is able to take an equal part in the learning activity. It is therefore important to note that cooperative roles offer a great chance to consciously apply cooperative tools, to establish and organise cooperative systems-structures. However we **need to provide the participants with accessible sources that make it possible for them to learn how to use these tools.** One of the explicit aims of improving our children is to teach them concrete cooperative structures/methods that they can immediately apply so that they have cooperative tools that they can directly resort to to enhance collective learning in an autonomous way.

3.4. Cooperative role as the complex development tool of personal and social competence

Well-chosen roles

It is through roles that we can insert the various individual forms of competence development into the processes of learning-cooperation.

Let us take, as an example, the Encourager who pays attention to the principle of equal participation within the group by encouraging everyone to take active part and not letting anyone dominate.

The Encourager is also given tools in the course of cooperative learning. He gets communication tools inside the group, such as “door openers”: “What’s your opinion about this?” or “Would you elaborate on what you mean?”

A structure that explicitly guarantees equal participation is for example the Rally Robin through which everybody, one after each other, has an equal opportunity to voice his opinion. A similar tool is the Window which contains the opinion of everybody. If the Encourager applies these tools she is able to ensure equal participation in her small group structurally. Thus one can play the role symbolized by “encouragement” with the help of an increasing number of tools which means she can play this role better and better. This process goes on till these tools are interiorised through practice: so the fact that she is cooperative and pays attention to her partners appears as her attribute. In problem-solving scenarios she then routinely guards equal participation and applies structures ensuring equal participation unconsciously when organising the cooperation of a small group.

We can shape roles along the competencies assisting cooperation and learning, while the competencies themselves we may come to know through the behaviour of people possessing adequate cooperative attributes and through the well-established psychological, pedagogical and social practice. Cooperative roles, skills and attributes mutually shape and determine one another. Competency-based development – which was frequently referred to in the past decade in Hungary – may also become fixed if it does not take the individualizing tendency of quality education into consideration. **The framing and articulation of the competencies to be improved must always originate from the individual and not exclusively from those explored and accepted by the literature so far.**

That is why we took the liberty to write about the “making friends with books” competence above. In the art of pedagogy – in the process of cooperative learning – the roles and competencies are unfolding mutually. We need teachers’ creativity so that we can provide each individual with a development framework suited for him.

It is the cooperative principles that provide a framework for my creativity as a teacher in devising and shaping the various roles. If the cooperative principles prevail through playing the roles, then I cannot be that wrong.

Although roles are needed in each group it is important to state that **roles are needed as long as the competencies or group of competencies attached to them are not interiorised.**

Such is the case when our Jonny Bart takes out a book at home, which he borrowed from the library, because he does not have anything to read at home. After that it is no longer necessary to make him open the books during class: he can do it on his own at home.

Roles are rotated and eroded. After a year or two of cooperative learning it is unnecessary to have a Note Keeper, because everyone takes notes on her own paying attention to the others at the same time as they already become masters of common note taking or recording common rules. Thus, instead of the Note Keeper other roles appear, such as the Philologist for example at the secondary school level, who compiles the literature and is able to arrange, select and analyse the chosen texts and sources and examine them critically. Or there can be any other role deemed to be necessary.

After a while, **when the most fundamental personal, social and learning skills are elaborated and interiorised we can talk about projects developed and devised by autonomous students.**

3.5. Cooperative role as a tool of instruction

We have seen that through the tasks given to its owner we can shape the role similarly to the way a character is shaped in the theatres as the play progresses. As the “director” of cooperative learning we can also use these roles as a tool of instruction. What is more, their use makes simultaneous instruction possible.

I apply simultaneous instruction for example when I tell the Task Masters to choose ten pictures of their liking from the books on their table. At the same time the Notaries should record as much information about the animal their group is named after as they can imagine (attributes, data, behaviour, etc.). The Encouragers should design a coat-of-arms about that particular animal which can also symbolize their group, while the Time Keepers should recall the running horses, the brave dogs etc. and think it over in what ways their group is similar to these running horses and brave dogs.

We can see that here we addressed four different kinds of activities and fields of competence at the same time in a way that we established the principle of interdependence through **individualized tasks for the whole group**. Each group works out a different theme (horses, dogs, cats, mice) and within the group they develop different competencies through the different tasks (using the book, assessing knowledge, iconic-symbolic-anatomic representation and heraldic knowledge, symbolic writing and comprehension, emotional intelligence). All these through four simple sentences of instruction.

We can therefore state that **there are as many cooperative roles as there are competencies and fields of competencies to be developed. I can assign individualized tasks by giving clear instructions consisting of one or two points to as many kids as the number of kids who have a personalized role.** Therefore we should use our creative energy to define the roles and to instruct the kids through these roles as precisely as we can.

The above examples clearly show that roles have utmost importance in both implementing cooperative principles and guaranteeing individual development and individualisation. Besides being able to instruct the groups simultaneously we can guarantee the implementation of certain principles with their help in a way that they provide framework for personalized tasks. If we consider the place of the roles in cooperative learning from the perspective of the principles, we can state the following:

- The application of the roles advances equal participation and access in small groups, as everyone has a personalised role.
- With their help we can shape and form the simultaneous interactions because along the roles each and every participant can be instructed and moved at the same time.
- The international literature also considers the complementary roles as one of the important tools of constructive interdependence. In our example, the whole of the domestic animals learnt becomes clear to everyone through the organised cooperation of various roles within the group – each and every group elaborate different sides of the same topic in a different way and to get to know the whole picture you need the work of every small group.
- Roles help to make the limits of personal responsibility and accountability clear and put them into coherent form. In our example Johnny is making an album from the digitalized version of the pictures he chose – another step towards books - and thanks to Eve we get to know some grey cats and we shall hear only good things about the dogs from Rob.
- The roles, however, reveal the tasks the individuals undertook together with their responsibilities and functions within the groups, not only for the players but also for the other group members and for the big group, too contributing to the establishment of cooperative publicity created step by step.
- We have already shown the feature of cooperative roles in advancing competency-based development.

It is evident that a well-devised role also solves the problems related to the instruction and mobilization of those taking part in learning and, similarly to the structures implemented through cooperative learning, guide them towards the spirit of the fundamental principles. On the basis of the above we state that without cooperative and equal roles we cannot really talk about efficient cooperative learning.

The dramaturgy of roles

We can **make the most of** cooperative roles in cooperative learning by using **tools for skills development and personalised tasks in a cooperative framework**.

Devising the roles is a sort of **dramaturgical task**. We need to see the future activities of the small group and of its members and also that of the big group step by step. We need to transform this envisaged dramaturgy onto understandable levels.

The first level²⁰ is **naming the role**.

*This can be a telling name such as **Encourager** who encourages the group members to participate; or **Note Keeper** who directs the **note taking** activity of the group, etc.*

The next level is the **character of the role**. This is nothing else but a **general task description**, the description of the dramaturgical function it has in the cooperation.

*The **Encouragers ensure equal participation** within the small and the big groups, too: they encourage everyone to equally participate in the work and also pay attention to the equal participation of the small groups. The **Notaries take care of note taking** so that everyone takes notes. Both when they need to take notes individually and when they have to take notes or make a presentation together. The character of the **Task Master** can be described by the sentence: **“Everybody, search.”** Her role is to make it clear what the task to be accomplished is (everybody should find the task), and what solutions are possible (everybody should find solutions).*

The **score or play script of the role** contains those **concrete communication tools** that the players can use successfully.

²⁰ Here the first levels only means order of the description.

In the case of the Encourager, for example:

Question to everyone: “What do you think about this? Everyone should say her opinion one after another”.

Recalling: “Every opinion is very important, let’s listen to him, too.” or!”

Addressing: “What is your opinion about that?”

The Encouragers may use.

Door openers, too: “Could You say a bit more about this? It’s important what you want to say, go on!” etc.

The concrete cooperative structures and methods can be called the repertoire of the role.

*Such is the **Rally Robin** which can be used efficiently by the Encourager, when, under his direction, everyone voices her opinion, collection and solution, etc. one after another. Similarly useful is the **Window**, when the members of the small group work together in a way that everyone’s information is put into the window that they draw together. What is more, they can also indicate similar opinions, collected data and solutions, etc.*

The concrete cooperative principles connected to the given role provide the basis of character development. We may regard this the level of dramaturgy.

For the Encourager – as we have seen above – equal participation may be the basic principle. For the Time Keeper, responsible for the efficient use of available time, it is simultaneous interaction. For the Note Keeper, responsible for taking notes, it is constructive interdependence (e.g. the use of legible writing). For the Task Master – as a result of keeping the task which relates to everyone – it is the principle of personal responsibility and accountability which becomes the guiding line.

Cooperative roles maybe created by the groups themselves, too. This is useful because we may enhance the cooperative autonomy of the small groups in this way.

In an experienced cooperative group I would start the process of creating such roles by making kids, experienced in cooperative work, collect various attributions:

“Everyone name two of his attributions that could be useful from the perspective of cooperation. Find also two other attributions that are important to be able to comprehend what you read. Name a few attributions that you think needs improving so that you can understand the texts better.”

If the members of the group know one another, they can make interviews in pairs. One of them lists the features that characterizes his partner and record those that the other one agrees with. They then change roles and the one who has been described lists the features of her partner. In the case of individual work the Rally Robin could be used when the attributions would be written down onto a common page according to the questions.

Following the paired interview the characteristic features are introduced to the other group members in the form of paired introduction and this is how the competence map of the group is drafted.

After that the groups are given the eight tasks that should otherwise be accomplished together in the course of their learning. On the basis of their strengths and the skills to be improved the small groups have to select which task may enhance their improvement: “Decide which skills of yours needs improvement. Decide which task can be connected to a skill to be developed so it could assist the improvement of your classmate. Everyone should have two different tasks. Give a telling name to those responsible for the tasks assigned.”

Afterwards it is worth discussing how the useful cooperative features they collected may help to improve the targeted skills and the practice of the chosen role.

On the basis of the above it is evident that the **dramaturgy of the cooperative roles may provide** the cooperative groups with **a structural tool organised at various levels**. Through the roles a real inclusion, the real incorporation of those participating in the learning activities, can be achieved as these roles are mainly meant to assist the efficiency, effectiveness and equity of cooperation (e.g. the Encourager takes care of not letting anyone lag behind or dominate, the Note Keeper makes sure that everyone really and not only seemingly takes notes, while the Task Master helps the group keep on carrying out the task... etc.).

Practicing the cooperative roles the participants, with the help of the cooperative principles, structures and methods, will sooner or later be able to **organise their cooperative learning in an autonomous way**. The fact that the participants practice and analyse cooperative roles – and we/they do not only directly analyse their spontaneous learning behaviour – makes **reflective competence development** possible in an efficient, effective and equitable way in the framework of cooperative learning.

Chapter 4

TEACHERS' ROLE IN ENHANCING COOPERATIVE LEARNING

4.1. Shaping teacher's attitude

- *A cooperative teacher does not decide what an adequate reaction or attitude is, instead, he launches supportive and cooperative learning on the basis of accepting any attitude that is real.*

The possibility of applying Rogers' model

The attitude of the teacher has a crucial impact on the quality of the practice that is based on cooperative principles. The formation of teacher's attitude is assisted by the discoveries of social sciences and their functional, effective and efficient models. Within the framework of cooperative learning the conditions of the learner-, and learning-centred teacher's attitude, which is based on the client-centred psychotherapy of Rogers' model, can clearly prevail. So everything that Rogers, his disciples and the researchers, developers and experts following them have revealed in relation to the roles and concrete practices of teachers can be successfully applied in the teaching-learning process built upon cooperative structures. The **greatest challenge** for a teacher is to **consciously acquire the revealed patterns of behaviour and to practice them in a conscious way**.

Among the essential conditions for learning Rogers emphasizes the use of **real problems that students can experience**. When, in the course of cooperative learning, we start with the unique interests, problems and questions of the individual we are then building upon the **self-realisation and self-actualisation tendencies of the individual**, which they tackle problems with. Through their psychotherapy research Rogers and his fellow researchers showed that this dimension of self-realisation is available for each person, regardless how heavy and thick layer of "psychological silt" has been deposited on it.

Regarding Rogers it is important to emphasize that a cooperative teacher is **able to show unconditional acceptance towards** students who experience and express real problems, which means that he accepts the doubts, emotions and expectations of students in relation to the learning process, the teacher and themselves, whatever those might be. That is, she **provides a chance** not to know something, to determine topics alone, to solve problems, to ask questions and to have emotions against learning. This means that she accepts the actual emotional and intellectual state of the students and organises the process of development on the basis of those.

If I am a math teacher and if there is someone who hates math, I have to accept this feeling of him. Not just "bury the whole thing" but instead, help the person define his antipathy against math as precisely as possible. If someone is allowed to say that she hates math and we help her express this feeling then, generally, it soon turns out that it is not math that she hates but the failures connected to math that she has difficulty to tolerate.

If I recognize that the protesting student needs success and real learning then I should look for or come up with a game that let him into the secrets of mathematics and make it possible for him to discover – on the basis of the self-confidence he gained in the games –mathematical concepts together with us.

It is an important condition of essential learning that the teacher should be **credible** when accepting emotions. This means that the teacher, instead of obeying some kind of compulsion or supposed teacher's role, is able to accomplish this **in a congruent way** – to use the words of Rogers. Since such a teacher experiences himself as being himself, he is not only able to accept the internal world and emotions of his students but also to **feel it with empathy and to express this** towards those participating in learning **in a way that they also feel this empathy sincere**.

Cooperative learning may also involve the communicative tools for accepting and expressing feelings, expectations, demands and needs thanks to, among others, the work of Thomas Gordon, being Roger's disciple himself. A future cooperative teacher may get to know the tools for expressing attention and interest and showing understanding - **humming and passive listening, door-opener questions, active listening, self-expression, Dewey's model of no-loose conflict resolution, tolerance towards value differences** – mainly from his works as they appear in domestic literature. It is also here from where such a teacher may learn how to use these skills and involve them into her methodology. When children study in autonomous and cooperative groups and are allowed to learn following their own problems and helping one another then we are implementing the recognition of Rogers and Gordon that **learners are competent in solving their own problems**²¹. Using the tools of Gordon mentioned above, however, we can also preserve this autonomy in the course of cooperative learning.

When a teacher, trying to implement cooperative learning, sees that a small group is not able to solve a problem and, in the end, approaches the group and outlines the solution, she violates this particular autonomy. The message of her behaviour is that in reality they are unable to achieve the task without her, the "teacher".

In practice we follow the principle that the members of small groups **should first turn to their fellows and to the other members of the group with their questions**. If we insist on this, we can implement Roger's principle of acceptance in cooperative learning.

In the beginning small groups feel a bit strange and unusual that their teacher does not answer their questions but rather, make them turn to the other groups. Or, the teacher listens to their problems carefully without suggesting any solutions or providing any resources for their solution. Searching for solutions feverishly and solving problems together within such real cooperation shape the learning large group into some sort of natural and fertile student community.

The needs and wants of the learning individuals form the basis of cooperative learning. So teachers **not only have to simply accept** the emotions of their students, but also **need to establish an environment** in the course of cooperative learning where **such feelings, expectations and needs can increasingly be freely expressed**, making essential learning possible for all of us.

The **sources of learning provided** in a cooperative environment **are opportunities and not requirements that we enforce upon our students**.

In my group, mentioned earlier - whose members do not read books and written texts –, for example, there was not only one compulsory reading, but at least 160 literary works that were suitable for their age group. I felt that it was important that everybody finds at least one book that she would willingly want to read, and that I have also read, so that we could discuss it for certain. Providing freedom this way resulted in a situation that everybody truly read at least one novel, what is more, they asked me to suggest books from the list for them. Kids also suggested books to one another and had long conversations with me and with each other about what they had read. There were even kids who brought books from home and, although the school had a library, established a little library in his dorm room for his friends. Children started to "function" as a real community of book-lovers.

The **teacher** should be an **expert of her field** to an extent that in the case of even the most trivial interest or disinterest, she should be able to **establish a learning environment** where such student attitudes may be thematized as problems that someone can freely experience and where kids **receive resources and suggestions with which they can solve and process the emerging problems**.

²¹ Here we could also quote Freinet, Steiner, Montessori, Neil, Kilpatrick, Berne, etc.

4.2. New teacher's roles: monitoring, intervention, correction

In general, every teacher recognizes that **planning is of key importance regarding the establishment of cooperative learning structures**. We hope that, on the basis of the previous chapters, compiling the first groups, personalising and harmonizing the aims of cooperation and competence development, devising the roles, providing the adequate resources and considering the concrete structures to be implemented appear, for the reader, too, as the important tasks of the teacher.

When implementing cooperative learning structures, what the teacher does, is mainly **monitoring**, that is, he leaves the learning autonomy of the groups intact and **does not directly intervene into learning**, doing it **only** indirectly, **through the preparation-organisation of learning and the provision of resources**.

Through **monitoring** he first examines whether the cooperative principles prevail in the small groups, that is, whether **everyone has the opportunity to take part in cooperative learning** – following his personal expectations, needs and wants and development plan – and to **contribute to common knowledge**. Through monitoring the teacher pays attention to detect whether **the devised academic aims and learning tasks are indeed in place** and **whether those truly assist the groups and the development of their members** throughout the given process.

When monitoring we do not only follow the development of personal and group competencies, but also take care that **the publicity of knowledge and learning be maintained step by step**.

In the framework of cooperative learning, **intervention** means that the teacher **interferes the learning process only when she sees that the principle of equal opportunity or cooperation is violated**. That is, when she wants to improve personal and/or social competencies and when she provides further resources for the sake of successful cooperative learning.

The following situation may easily happen: I notice that during the written Round Robin – when the different written works of the groups are sent around to the small groups – one member of a group of four near the window, who is otherwise their Timekeeper, is regularly left out of processing the texts because it is always the other three members of the group who read and discuss them.

In such a case, intervening through simple verbal instruction, I can tell all the small groups that the text they get from the other groups should always be read by the Timekeeper. This way I can react to the lack of cooperation immediately and efficiently and I do it with integrating the left out group member on the basis of structural and constructive interdependence.

Because if he is the one who reads the texts the others are “obliged” to turn to him.

It is even better if the cooperative teacher does not only react on the level of instruction, as in the example above, but **intervenes in a way that sets an example**. In the case of a quarrelling micro group, she does not say *why* it is not allowed to have a quarrel, but shows *how* a decision can be made without quarrelling. This way she improves cooperation not through moralization, but by **introducing learnable cooperative patterns of behaviour and continuously setting personal examples**.

We can talk about **cooperative correction** if unpredictable and unexpected needs and wants emerge in the course of cooperative learning. Within cooperative learning structures, the steps of knowledge construction – for the sake of successful cooperative learning – must constantly be public for every participant, including the teacher, too. Therefore we have to structure our cooperative learning in a way that the organisers and the participants of the training can monitor the steps of acquisition till the very end. This way they can immediately react – on the basis of the above principles - to the needs and wants they recognize.

In such cases we need to strive for **cooperative correction**, that is, we should apply a method, step, etc. to satisfy the recognized need or the emerged demand which is conformity with the cooperative principles.

In the process of cooperative learning, besides monitoring, the teacher **intervenes by setting an example** if cooperation needs developing and applies **cooperative correction** to adjust the cooperative activity to the emerged learning and professional needs and wants.

A new dimension of assessing and evaluating learning and knowledge is born this way. In the course of learning based on their common expectation and recognised needs, those who take part in cooperative learning (students and teachers), **thanks to the continuous publicity of small and large groups, structure and develop their cooperative learning with the help of authentic feedback. They do this without having to moralize, classify or punish each other for the sake of learning** in connection with the assessment and evaluation of the learners' performance.

We can speak about **unique knowledge constructions** from the perspective of essential learning, too. Everybody develops a different and distinctive picture about the world, so in this respect, the knowledge of the teacher can "never be put into the children's heads". The teacher's own knowledge and **authentic presence**, however, **as a resource** – in the form of information, patterns of behaviour, mentality, questions and practices helping cooperation – **may assist the essential learning of cooperative learners and their partners** (let them be either kids or adults).

It was especially the **personal presence of the teacher** and an **authentic interest in his own professional field that has led** to essential learning – even in systems that pigeonhole everyone through categorization –, if not for everyone and not for the majority of people but for those kids who were interested. If the teacher is not interested in assisting essential learning, if she does not consider it important to be sincerely aware of herself and of her professional interests, then she reaches the same approach through a series of failures and successes collected throughout the years – or she may leave the profession.

4.3. Attitudes facilitating cooperative learning

Sharing or collecting information?

In the following we shall consider the already mentioned **most important attitudes** needed for cooperative learning structures. Here, attitude refers to the opinion, approach and complex perceptions a teacher has regarding learning and teaching, which also implies assessment and emotional components²². It is one attitude to consider the role of the teacher as primarily an information provider, and it is a different attitude to think that the skills to collect and analyse information have priority. In the first case we consider the personal qualities of the teacher and her performance as a lecturer as a merit, while in the second case, we value the progress those participating in learning make in collecting and analysing information.

In a sense this change of attitude can also be the key to cooperative learning structures. Although cooperative structures themselves imply the guarantee for the implementation of cooperative situations, the increased density of interpersonal relations (see simultaneous interactions) in a classroom can frequently lead to situations to be solved in small groups (e.g. one of the groups do not understand the task or a conflict arises because someone is not approved of, etc.). To solve such questions, you need some sort of cooperative attitude toolkit, which can make the functioning and success of cooperative structures valid, especially in such situations. The list below is not exhaustive, here we intended to outline a comprehensive set of cooperative attitudes that can easily be translated into practice.

Knowledge is the collective creation of mankind

This approach views human knowledge as the collectively created tradition of mankind. It does not involve the nature of knowledge, whether it is secret or public, scientific or religious, etc. Instead, it strives to remain open towards accessible and emerging knowledge and, for the sake of developing the cooperative learning community, to make such knowledge accessible for the individuals. Such knowledge or learning is one's native tongue and cultural heritage. The language and culture one

²² Aronson also has the same definition in his seminal work: *A társas lény* (Közgazdasági és Jogi Könyvkiadó, Budapest, 1978. 104. oldal, bővíte² kiadás, Osiris, Budapest, 2008.)

brings from home, the various individual attainments and proficiencies are all building stones of learning, whether we pay attention to it during teaching and learning, or not. This cooperative approach, which focuses on collective creation, calls our attention to the fact, that in the case cooperative learning structures we, if possible, need to structure the processes of learning in a way that would incorporate individual knowledge and attainment as well as the cultural values represented by individuals. What is more, in the course of learning these values should be built upon. For a cooperative teacher the diversity of knowledge in his class is like a “goldmine”, because using cooperative structures, this cultural and knowledge diversity can be metamorphosed into a cooperative learning polyphony.

Access to knowledge is the fundamental right of everyone

The principle of sovereignty declares that the power of the state shall be exercise by the people. One of the instruments to achieve this is universal and secret suffrage. If, on the basis of this, we assume that through their autonomous and conscious decisions people are able to exercise the power assigned to them by the principle of sovereignty, then we need to guarantee that everyone should have equal opportunity to participate in the processes of learning. If everyone may have access to, for example, the common knowledge taught in schools, then he will make his individual and conscious decisions – that might concern the community – in a more reasonable way. It is therefore necessary to make the access to knowledge intended to be known by every individual a fundamental right for all of us. This attitude believes that in the field of education – especially in public education – it is essential to examine if, as a result of the various teaching activities, everyone has had adequate access to common knowledge and if they are able to orient in an autonomous way and successfully follow their well-founded individual plans in the right directions (general knowledge, professional knowledge in line with his individual interest, qualifications, etc.). This means that we do not investigate how the teacher and some “good students” get on with the “material”, but whether everyone progresses according to their individual aptitude, knowledge and ideas.

Access to knowledge should be guaranteed for everyone

If we apply concrete and practical cooperative principles we can represent this approach effectively, efficiently and in an equitable way. The flexible and open structures, the simultaneous interaction involving everyone, the equal participation, the personal responsibility and accountability, the continuous cooperative publicity of groups, the conscious development of personal and social competencies and cognitive-learning competencies set out a clear and practical framework for the teaching activity defined step-by-step. In this respect we might also say that a cooperative teacher structures the publicity of knowledge accessible by everyone through his teaching process.

Learning should originate from the individual wishing to learn

If someone has no wish to learn, if no essential interest or curiosity emerges regarding the topic, then it is very difficult to ensure essential learning for her. Getting to know the students and helping them voice their intentions and doubts may give us ideas regarding how to raise or follow the various individual interests. The self-realisation tendency of Rogers can involve the individuals who take part in learning only by progressing towards and solving problems that are considered essential. This attitude calls the attention to the fact that the students stand in the centre of learning and that the most important activity is to get to know them in an objective and efficient way. Judging against the “master”-centred approach of pedagogy (e.g. sage, guru, etc.), the attention is not focused on the teacher but on the student and therefore the attention of the students is also focused mainly on one another and on themselves.

Everyone operates an individual and complex knowledge construction

Although human knowledge is common, the knowledge of each individual is quite different. The structure, defining principles, forms and ways of expression of an individual's knowledge are influenced by several factors, however this time, we are not interested in the complexity of this concept of knowledge construction. The practical message of the attitude we outlined is rather that we must see the following clearly: everyone's knowledge is different and it stays like this forever. **The aim of cooperative learning is therefore not the homogenization of individual knowledge but the integration of them** into the tradition of human learning. For the acquisition and use of scientific knowledge (social sciences, humanities, science, etc.), the levels of requirements can be defined, however, it is a different question who achieves these levels and how, and also in what direction he sets out from there. Not to mention the fact that in the case of learning art, aesthetics and philosophy, besides the effects that can be described by scientific tools, we can also talk about progress that can be better grasped through a discourse envisaged outside the scope of science (e.g. aesthetics). For a cooperative teacher the most important task is to explore the individual ways and to assist those efficiently and effectively so that everyone may reach the general level of requirements, the general development of their abilities in an autonomous way.

Empathy also needs to be expressed through cooperative learning

It is vital that the participants of cooperative learning (teachers, students) should not only get to know the knowledge, interests and states of mind of one another, but also recognize and feel each other's emotions and scruples. Our emotional life, personal and social skills may have a crucial impact on our future career. It is not enough just to recognize the feelings of others, we need to express these recognitions towards our peers with empathy. If someone sees that her partner empathizes with her keeping a sincere eye on how she feels, then, as a result of such reflections, she is able to define her feelings and react to them more precisely. The recognition, expression, comprehension and regulation of emotions has become an independent scientific field within psychology (researching emotional intelligence) and provides ample evidence that it is the state of emotional intelligence of people which has a crucial contribution to happiness in life.

The organisers and the participants of learning should be understanding

If our starting point is the individual, we need to learn to accept what we learn of others. What counts is not forcing our students to adopt a suitable attitude but to get to know and understand the real attitude of them so that we can adjust our teaching practice in a cooperative way. This attitude is not guided by the nature of the relationship the teacher has with learning or with his subject – actually, we can expect a teacher to be on the level of a “candidate master” -, instead, the teacher turns his attention to understanding what he learned of his students and accept those as their actual condition so he can structure the processes of cooperative learning according to the real situation.

Behavioural congruence is most effective in cooperative situations

The words of empathy become truly sincere and the participants of cooperative learning will feel accepted only when “the mouth says what the head and the heart feels” (Imre Montágh). This is congruence. That is, students believe that someone is truly understanding and has empathy only if that person herself is credible and accepts her own feelings, doubts and lack of knowledge the same way that she expects her students to act. We saw at Rogers that this meant that the person realises her feelings and acts in accordance with her recognized emotional state of mind. In the beginning congruent behaviour may be a question of one's conscious decision even if he does not possess congruent patterns of behaviour. This time we begin to pay conscious attention to our emotional messages. As long as we do not recognize our own feelings, we cannot be truly empathic, since as

long as we do not recognize the feelings we have, say repressed anger, there is not much chance to recognize those of others. Congruence is a skill which can be practiced consciously but in the beginning we need to acquire the attitude of “striving for congruence”. Berne calls the mutually congruent interactions “game-free intimacy”. When, for example, someone does not play the “ideal teacher” and is able to enter a learning situation without any play-acting. To reach congruence Rogers provides the necessary conditions, as we have discussed above, while Gordon elaborates the techniques to be used in practice. It is especially from the perspective of congruence that Gordon talks about stating responsibility in connection with, for example, the I-statement, explaining that through an I-statement the teacher takes responsibility for his feelings (e.g. for his anxiety over the lack of success), that are otherwise kept in secret.

Learning-centred flexibility

In the processes of cooperative learning structures learning is always in the centre. Along the cooperative principles and attitudes and according to the needs and recognized wants of the participants we can shape the tools of development and the cooperative structures in a flexible way. It is especially important to understand that even if we are one of the organisers of learning, we do not always have to find out everything. It is not our teaching or learning that is in the centre, but instead, the learning activity of the cooperative community of learners. The community produces a great deal of creativity in the course of cooperative learning and it is practical to build upon this when we implement flexible cooperative corrections. If we take the ideas of the participants into consideration they will be increasingly autonomous in organising their own learning, because they can test their ideas in practice. The most crucial question for the teacher structuring learning in any established teaching situation is the following: How can we all learn from this?

Autonomy in learning

If we manage to harmonise the personal, social and learning competencies of the participants according to cooperative principles and improve them for the sake of cooperation, then, in the course of our cooperative learning, autonomous and cooperative learning communities are born consisting of people who are able to learn on their own. It is practical to immediately bear in mind the autonomy achieved in learning and consider it as a vital value. It is not the pace, the degree and the level of requirements that matter, as these are only tools to achieve our aims. In the processes of academic knowledge acquisition the emphasis is placed on establishing and cultivating the ability to develop on your own. For the sake of this we should regard the small groups as autonomous and independent, who are also able to organise their work. It may be, however, that in the beginning they are not yet able to cooperate in an efficient and equitable way, but if we find this out together, we can already help them develop the necessary skills, so that they can achieve independence in their own learning as soon as possible. On the other hand, this independence, this tendency of self-realization is given in every person as it was proved by the research of Rogers as early as in the 1960s. However, this tendency of self-actualization must be rid of the “psychological silt deposited on it” so that the individual can develop himself within his community.

Attitude expecting the achievement of a more cooperative situation

Cooperative learning structures originate from the fact, proved by psychological research, that the competencies assisting our cooperation can be developed successfully till the end of our life. Thus, a cooperative teacher approaches any non-cooperative learning situation with an attitude which assumes the clear possibility of achieving a more cooperative situation. That is, the cooperative attitude is not about hoping but approaching the teaching situation by considering the question of how it can be made more cooperative. Teachers may use these attitudes and cooperative principles and roles as guidance.

4.4. Towards cooperative schools

Structuring and implementing cooperative learning – regardless what school system we consider – is an exhausting task. If the environment is not truly understanding, we can structure our learning however we want, the participants will only get superficial knowledge. It also exhausts one's energy when we are surrounded by cooperating partners who carry out their chosen activities with joy, but it can be even more exhausting if someone carries out his work as a teacher just playing some kind of “teacher's role” without any real interest.

In a cooperative faculty the whole system of organising their institution is built upon cooperative principles. The cooperative small groups of tasks and common decisions make it impossible for the teachers “to burn out”.

Unfortunately, our experiences show, that although most of the teachers believe it is possible to introduce cooperative learning in class, they think it can be adapted to the school, as an institution, only with great difficulty. The hierarchical institutional structure is sometimes stronger than that of the classroom. Behind this we can find the assumption that someone must keep the situation under control, as this is serious business.

These fears are clear and understandable. However, we should not forget that **while the groups of colleagues are not able to cooperate in an effective, efficient and equitable way, someone must help them.** In the beginning this can be a teacher, the headmaster then the group members themselves. Within the established form of cooperative institutional structures the initiating teacher/headmistress appears as a co-organisier. Cooperative institutional structures seek to achieve a situation where it is not the position a colleague holds in the organisation that provides authority, but the attitude and expertise of those assisting essential development.

The faculties and the employees of the institution should learn to cooperate so that they can increasingly be present in the life of their institution, and so that the workplace they developed together may accommodate their individual ideas, too. Having cooperative learning and institutional structures is a **matter of decision** indeed, however, the successes we have later on motivate us to go further.

At the beginning, when I, as a cooperative trainer, began to work and research together with my colleague, I was afraid what would happen to my own personality. It was difficult to get used to the fact that there was somebody who always knew when I had not done something or when I had not been accurate. However, this influenced us in a way that we became increasingly sincere in telling one another what we wanted to take on from our common work and what we undertook purely because of loyalty. What we were aware of what we were unaware of.

Later, such distributions – even the tasks undertook on the basis of loyalty – always produced creative individual solutions, quite possibly as a result of accepting each other.

And since there was always someone I could share my thoughts with, the ideas immediately started to develop and mature. According to Rogers the need for sharing goes together with creativity.

Chapter 5

BASIC CO-OPERATIVE STRUCTURES

Introduction

In this chapter we list the **co-operative structures** with the help of which lessons and projects manifesting the principles of co-operative learning usually are structured. **We use 4-5 basic structures/techniques and any number of their combinations to develop co-operative relationship in micro-groups.**²³ The most important issue is the acquisition of these basic co-operative structures and the presentation of their combinations.

The description of each basic co-operative structure consists of four sections:

- A short definition of the structure
- General description of the structure
- Description of the steps of the structure
- Comparison of the structure against co-operative principles

For the efficient application of these structures it is **necessary** for the co-operative teacher to **be aware of the development strategies of various competencies**, since these are the ones which he or she will make available for each participating student with co-operative techniques. It is not enough to know how children can solve a task together, it has to be clearly seen what kind of tasks can activate the groups and the individuals indeed; and what concrete skill can be developed in members by each task.

In analysing particular co-operative structures we consider the most important co-operative principles that must be there as a minimum simultaneously so that we can talk about co-operative learning:

- Equal participation and access
- Personal responsibility and individual accountability
- Personally inclusive parallel interaction
- Constructive and encouraging interdependence
- Consciously improved personal, social and cognitive competencies

In case of the development of personal, social and cognitive competencies, there is a vast number of combinations possible, of course, and several competencies can be improved with the help of one particular co-operative structure/technique. In addition, as participants develop, we keep on focussing on consciously improving further competencies when applying the same co-operative learning structure. Therefore we only highlight a few vivid examples of developing competencies in case of each structure.

5.1. Student quartet (trio, quintet)

- *The spontaneity and simplicity of this structure, which is based on the instinctive curiosity and desire for feedback, enables the creative imagination of the educator to construct its forms freely.*

²³ Robert E. Slavin: *Using Student Team Learning* (The Johns Hopkins University. Baltimore, Maryland, 1986.) also lists only four basic techniques.

A short definition of student quartet

In **student quartet** each micro-group has a task to be solved together, but they only can consider it finished when everyone is able to complete it individually as well, without the help of the others. The teacher checks it by randomly picking individuals.

Student quartet is the basis of every co-operative group tool

Student quartet is a tool of spontaneous learning and thinking together **within the group**. We simply let group members think about the solution and take notes together, and finally check whether the outcome is clear for everyone. It differs from spontaneous group-work in this essential last step – each single member needs to be checked if they know the solution because the teacher will randomly check it afterwards.

The teacher structuring group-work does not interfere with issues of content, and if the students address questions, the teacher directs them to the other groups. She assists them exclusively for the sake of co-operation. For example, she draws attention to the role of the Encourager, if somebody is trailblazing alone, or when somebody has not spoken yet. When she notices that the group has digressed, she asks the Taskmaster how he would channel the conversation back on the subject. She monitors if the Recorder is able to manage written solutions with a view of collective participation, and gets informed by the Timekeeper if the group would complete the task within the assigned time limit.

The collective work in student quartet can take as many forms as the number of co-operative lesson plans made.

Although there are simple processes in student quartet, that is why the roles must be taken seriously, since only they can grant that student quartet, in contrast with traditional group-work, is genuine co-operative work even in the case of a newly formed group. That is to say, the shared thoughts need to be written down (Recorder), selected from (Taskmaster), put in a form (Recorder - Taskmaster); equal participation and access (Encourager) and time-limit (Timekeeper) need to be taken care of.

Student quartet is the level at which we can establish the actual ways of developing corresponding personal, social and cognitive competencies. It can be stated that more complex co-operative group structures all have evolved from the spontaneous and efficient tools of student quartet. That is why we start our chapter on basic co-operative structures by introducing student quartet.

In short, student quartet as a basic unit serves as the basis for almost all co-operative group structures, therefore only very general project-like steps can be defined, which facilitate planning.

The steps of student quartet

1. The group receives or chooses a task together.
2. The group collects and finds solutions, answers – individually as well.
3. They check possible solutions together.
4. They record (write down, learn, etc.) those they find correct.
 - They check if everyone has understood or is able to deduce the solutions or answers found together.
 - The teacher checks some individuals randomly.

In the English class, each small group gets 10 cards with one already known word each (including one or two new ones). The groups have to read them out, the members have to pronounce the words one by one (The Encourager can direct it) and write down their meanings (Recorder can manage it). This is their shared task. If there is a word they cannot pronounce or translate, they can send an envoy to another group – for pronunciation, to the teacher – or check it up in the digital dictionary (preparation, execution). When they have written down the meaning of every word, they check

them, and then ask each other one by one. The Taskmaster can control the practice of meaning and pronunciation (check). The teacher stops at a group when they have finished, and asks the words on the cards, randomly picking students, while the group records the results (checking together). Depending on the result, they either get new cards or continue practising with the old ones. The Timekeeper can control assessment and assigning new tasks.

The manifestation of fundamental co-operative principles in student quartet

Equal participation and access

Student quartet ensures equal access to knowledge by the heterogeneity of the group. As we have mentioned several times, not knowing is a form of knowing as well. During co-operation in learning together knowing and not knowing must mutually come to know each other.

The diversity of questions and interpretations enrich the knowledge of those learning together, regardless of the fact that someone is learning or teaching in the process.

Due to the spontaneity of the less formal student quartet structure equal participation is not granted by optionally providing opportunities for expression. In the heat of the debate or searching for a solution one's opinion may go unrecognised in bigger groups (of 4-6). Then we can promote the co-operative skills of the group with the help of roles. For example we can advise the Encourager to apply the poll technique, when not everyone is able to make comments in the heat of the debate; the Recorder or the Taskmaster to use a list of ideas, when we see that the group has collected too many items or ideas, and they just fluster, etc.

At the end of the activity, when the group makes sure that everyone is aware of the application of learning and cognitive schemes and tools necessary for completing the task, and of the solution of the group as well, equal participation is fulfilled in equal access. These last two steps (internal checking and random external checking) makes the student quartet different from traditional small-group activities.

Personal responsibility and individual accountability

In the student quartet members of the group do everything in front of each other – reading, comprehension, incomprehension, lazing around, taking notes, evaluation, development –, thus every learning form and attitude from individual learning and interpretation to individual presentations are accompanied by the publicity of the group.

Continuous group-publicity based on co-operation provides an excellent framework for developing personal, social and cognitive competencies, since it assumes continuous and genuine feedback between group members. This helps the individual to recognise their own skills yet to be developed, as well as the way and efficiency of this development. Such feedback, at the same time, testifies genuine partnerial support, thus reinforcing personal responsibility.

Members of an outspoken and supportive group are increasingly able to take responsibility for their own attainments and acts. This is granted by the penultimate step the student quartet, when everybody has to prove in front of their groupmates that “they have learned the lesson”.

Personal responsibility and individual accountability are also present in student quartet when the teacher makes sure of the knowledge of the students randomly in the last step. The ones picked find themselves in a real and concrete situation of responsibility, which is, in addition, in positive interaction with the activity of their peers, since they have to give an account not of individually acquired knowledge, but of genuine individual knowledge supported by the whole group. It is in the interest of peers to prepare one another, because they receive their next task depending on the results of their randomly picked peers. And if they fail, they have to get back to teaching each other, while if they succeed, they can go on...

Personally inculsive parallel interaction

Parallel interaction within the whole large group is granted by the fact that students work in quartets, that is, in groups of four.

In case of the less formal student quartet, when it is not defined what individuals have to do step by step in the group, there is an opportunity for free flow of ideas, ad hoc propositions, emphasis of individual interpretation foci, etc. That is, spontaneity is the first form of parallelism within the group, which is followed by a collective step (e.g. taking notes, making a placard or an action plan together). However, spontaneous brainstorming can be followed – when several solutions emerge for a concrete problem – by formal parallel interaction based on sharing tasks. For example members divide the spontaneously collected topics or solutions, and they can work in different segments in pairs in a parallel way. For instance, if they have found two ways to answer a mathematical problem, they can test – dividing themselves into two pairs – if the two proposals lead to the same answer. Thus parallel interaction can occur even within the micro-group in the structure of student quartet.

Constructive and encouraging interdependence

When the small group gets down to complete or discuss a task together, they find out how they can help each other, how individuals can contribute to the success of their joint solutions.

The round checking on understanding is obviously built on the contribution of group members. It is important to highlight once again that those who ask questions for the purpose of understanding, or are insecure in their knowledge of something that might seem evident, contribute to the deeper comprehension of the subject in the same way as those who “bring” the correct answer in the group. The questions target the topic from various aspects, while the answers given to them reflect on the subject from several points of view, thus group members have to gather the collective knowledge of the group and word it in the most comprehensible way possible, more deeply ingraining their own knowledge.

Consciously improved personal, social and cognitive competencies

By the fact that everyone can bring up their strengths and weaknesses spontaneously in a student quartet, the social abilities of self-esteem and self-confidence can be developed. Simultaneous parallel interaction

Developing empathy: according to Goleman, besides well-developed personal competencies, empathy is based on understanding and developing others. The spontaneous phase and the step of checking understanding provide an opportunity to the conscious improvement these skills.

Making collective opinions, answers and solutions comprehensible for the others (summarising ability) provides an excellent opportunity for developing learning skills. When they also make a note on this together: experience in making learning aids.

5.2. Round Robin and its variations: poll, window, roundtable

- *If a task has to be interpreted, the Round Robin ensures that everyone can put their questions into words.*
- *Round Robins can be made more diverse by using polls, windows and roundtables.*

A short definition of Round Robin

The word “goes round” the members of the group, that is why it is called Round Robin, as long as everyone can have their word within a regulated framework. Each person takes his or her turn

within the micro-group. If all this happens in written form, it can be the structure of window or roundtable, detailed below.

Equal opportunity of participation in learning together

In the beginning, it is useful to assign a person to control Round Robin so that it can become natural by way of practice: everyone comments on the topic, asks and answers questions, that is, communicates. **Round Robin is a group-tool ensuring equal opportunity of participation.**

Round Robin can be used for summarising individually collected items (characteristics, names, formulae, bibliographic data, dates, etc.), for which window and roundtable are serve as handy aids. It also provides an opportunity for individual presentations, when everyone prepares a different segment of the topic and presentation - teaching takes place in the micro-group. Its variations:

Poll, which we may know independently of co-operative learning, is an example of Round Robin as well. For example when making a draft together, someone asks: "Do you all think it right to write ... here?"

Window is a geometric shape divided into as many parts as the number of group members. They number the divisions and put the collected items in them according to how many people have collected the same – if two people, then in segment number two, if four, then into number four, etc. At the beginning – when introducing the structure of window – we use square or round windows, later only the creativity of participants limit the shape (flower, triangle, etc.), since by that time they all will understand the function of the window.

Roundtable is the written form of Round Robin. We consider it a crucial principle – in contrast with the roundtable introduced by Kagan – that the person who is presenting something should not write at the same time! Let us introduce a rule for it: always the person sitting right from the presenter will be the one who takes notes. This way we also grant that at least one peer will listen to the presenter: the one who takes the notes. Maybe it is more useful to appoint the one who sits opposite the presenter, because their dialogue will create a bridge in the small public space of the micro-group. The other principle is that students must take turns writing. Even the window can be filled in by means of a roundtable: students take turns in writing items to the appropriate place. There are situations in which it is not expedient to separate presenter and recorder: when they write a tale together, from sentence to sentence. However, when we apply roundtable in connection with data, factual knowledge or opinions, the one who presents the topic should not focus on writing at the same time. The role of the Recorder enhances comprehension particularly, since sometimes an opinion presented in several sentences needs to be recorded only in a few words, which necessarily leads to questions aimed at interpretation. The structurally divided roles (presenter – recorder) contributes to comprehension, collective interpretation and more and more accurate wording.

In case of project products of roundtable – as in case of any other collectively made products – it also needs to be taken into account how it will be made available for the group members as well as for the whole class (whether to put them out, copy them, e-mail digital photos of them, etc).

Steps of Round Robin

1. The form of individual work must be indicated at the beginning, which can be collecting, opinion, question, etc. For example: "Write down your opinions about..." or "List domestic animals!", etc.
2. Individual work, e.g. collecting two domestic animals per person, writing three questions, putting down one's opinion in five sentences, etc.
3. Everyone takes turns to speak, step by step, under the Encourager's control. For example everyone says only one item, asks one question, reads out one key sentence at a time in a round, etc. Word keeps going round until all collected items are presented.

4. meanwhile individual or collective notes are taken. Collective notes are necessary when the various materials are put together, individual notes when the collected material is recorded individually for the group members.
5. When there is nothing left to present, the results and findings of the Round Robin are summarised: formally checked – counted; collective micro-group notes are taken – e.g. with the help of a window filled in during the Round Robin; correspondences are found; collective public notes or placards are made for the other groups; or, if possible, the results are presented to the others in words.

The manifestation of fundamental co-operative principles in Round Robin

Equal participation and access

In round Robin every group member can express themselves, so this learning structure enhances equal participation and grants that there are no “workhorses” or “free riders”, in Kaganian terms. Everyone makes the outcomes of their individual work public (for example, they tell what they have collected or why they could not collect anything), thus their knowledge will be shared by everyone in the group.

Personal responsibility and individual accountability

Round Robin, window and round table are explicitly the tools of articulating individual work, opinions, etc., and the undertaken tasks in the publicity of the group.

This tool instantly reveals who has not been able to succeed on their own, who needs help, since everyone needs to take a turn.

Personally inclusive parallel interaction

Since Round Robin is a micro-group activity and the micro-groups engage in it simultaneously, it ensures parallel interaction within the large group.

The opinions of each member of all micro-groups can be collected within the time of 3-4 utterances, and this collection takes place in a parallel way.

As the first step of Round Robin, members of a small group perform their individual tasks simultaneously as well, although parallelism is not accompanied by interactions here. Moreover, we need to draw the attention of the micro-groups to the fact that influencing group members by interactions would hamper the manifestation of individual opinions and collections.

Constructive and encouraging interdependence

Everyone is granted to take a turn in Round Robin.

Thus everyone's work is integrated in the knowledge of the small group – constructive interdependence is achieved.

Consciously improved personal, social and cognitive competencies

Initially the responsibility for individual performance and the ability to recognise strengths and weaknesses is what is in focus. In a Round Robin it is revealed about every individual how they have performed – at least for the micro-groups – each time. This allows for reflection on personal achievements, accurate self-evaluation and for developing of self-confidence.

When students Round Robin, partner-centredness and the appreciation of diversity are the two areas that enable us to take further steps in order to develop empathy.

Planned and concerted partnerial communication and the development of the attitude of observing from various points of view also are achieved here. At the same time, Round Robin, window and roundtable serve as good opportunities for developing interpreting together.

5.3. Group Round Robins

- *It is important to know that micro-groups can report on their work in the publicity of the whole class not only in the form of frontal presentations!*

A short definition of group Round Robins

In case of group Round Robins, word goes round between micro-groups. Groups express themselves one after the other by way of their representatives (present a result or data or the group's work, etc.). The point of group Round Robins is that word goes around between micro-groups as many times that each member can represent their micro-group at least once in the publicity of the whole large group. In its written version group-work goes around between micro-groups, thus each small group can know about the work of the others', and this happens in parallel interaction, that is, there will be no passive audience!

Equal opportunity of expression in the publicity of the large group

It can be used to check the work of micro-groups within the whole class together, or to sum up questions and remarks in various situations, in a way that provides equal opportunity for everyone to express themselves. Its variations:

Oral group Round Robin is a kind of frontal presentation, therefore it is important that one presentation should not be longer than 1-2 minutes or 2-3 sentences. For example each group work on a different mathematical problem of the same kind, separately. When they are ready, each groups' – let us say – Timekeeper presents their results and the explanation, the formula used for solving the problem shortly. This provides an opportunity for comparing various ways of solving the problem: for discovering new ways or reaffirming the old one.

During the frontal presentation of micro-groups – as well as during the teacher's or an individual student's frontal presentation – it is necessary to provide the listening groups (or even each individual) with points to observe. This way the students listening to the presentation really will pay attention, and they can integrate what they hear into their own knowledge. Thus the frontal presentation of a student is not "rest-time" for the others, but an important step of acquiring knowledge together. The essence of the group Round Robin is the collective responsibility of group members: "This is our joint work! Any one of us can present it!" This collective responsibility can be developed e.g. if the teacher or the micro-group appoints the presenter of their joint work randomly.

In another form of group Round Robin – **group Round Robin** on pieces of paper – we can sum up the work of the whole large group on a subject. Individual collections are checked within the micro-groups (e.g. in form of a window, by Round Robin), then the members write the items to be selected on separate pieces of paper. It is useful to prepare as many (or multiple) pieces of paper as the number of people in a micro-group, thus the basis of consensus can be e.g. that everyone indicates an important fact, item, etc. individually. This is followed by the large-group summary in the form of a group Round Robin. It means that each micro-group presents only one item at a time from the prepared pieces of paper. After each presentation, they stick their piece on a large sheet of paper in front of the large group. The other groups check if they have the same item. If yes, they indicate it, and the teacher or the student who has put out the piece marks the piece with a number referring to the number of groups having the same item (this piece of paper is called weighted). The topic covered this way will not be presented by any other group later. The next piece (question, answer, etc.) is presented by the next group. Word goes round this way until each piece of paper is presented in each group... Finally, there is a collective note on the board which must be copied to each student's notebooks – it is the Recorder's task to check it – so that they can work with the jointly collected materials later. If possible, it is useful to organise group Round Robin in at most as many rounds as

the number of people in the micro-group with the most members. This way we can pay attention to equal participation and opportunity for expression, in the form of co-operative frontal work.

Written group Round Robin means that the written work of micro-groups goes around from group to group in a pre-defined order (for example to the right – to the adjacent group). The groups discuss and interpret the written solutions of some other group. They attach questions or comments in writing. These sheets of paper go around until they get back to their original makers. Then they read the attached questions and comments, and following these, they adjust their original work and/or put down their arguments against modifications next to the questions and comments on the attached sheet. It is important, that if possible, there should be no more rounds than the number of group members in the micro-groups. That is, one sheet of paper should go round between four or five micro-groups, otherwise, if each paper goes round each group in a class made up of ten micro-groups, it certainly will enhance publicity, however, it takes too much time. Written group Round Robin can be used, for example, to create definitions, check solutions between groups, extend collections, etc. For instance each group solves a mathematical problem, and then passes the sheet containing their deduction and answer. While the sheet goes round, each group checks the others' solution. It only has to be checked that the remarks or corrections are clear for everyone. If not, they have to send an envoy to the group that attached the remark in question. After that, depending on success, the next problem can come.

Another version of written group Round Robin is **task assignment**, the beauty of which is that the children themselves propose a task to another group. They prepare the written worksheet with the questions in a roundtable, then pass it to the adjacent group. The micro-groups complete it, also in a roundtable, then send it back to the senders. They check their solutions, they make an evaluation sheet and a message (the corrected worksheet, postcard, pantomime message, applause, etc.), and send them back to the group that has solved the problem. This latter act – if the messages are short – also can take place in an oral Round Robin. The worksheet can serve the purpose of individual checking as well, but then as many worksheets or worksheet segments have to be made as the number of students in the solving group, and they even can indicate which task must be solved by which member.

Note Round Robin is the application of written group Round Robin within the group, that is, it belongs to Round Robin, however, we think that it is logical to present it here. Group members prepare a note each – individually or based on discussion – and pass them to their neighbour. Now they have to check if they can present the note written by their group member – if not, they ask questions or maybe add comments to the note. When the notes have come around, the teacher can ask any student about the contents of any note. Individual and group performance can be checked by random picking. Note Round Robin teaches children write eligibly and use accurate wording; this is helped by the fact that at least three of their peers will see if they can work on the basis of the notes written by them. The questions and interpretative proposals or remarks bring them closer and closer to the written recording accurate and useful, substantial statements.

In **moving group Round Robin** the solutions provided by the groups are made in a form that can be stuck out on the wall of the classroom or put on the group desks. The groups go around the written products (placards) like in a gallery (Kagan calls a version of moving group Round Robin gallery tour as well). If we let the groups simply walk around by themselves, they end up with a boring gallery tour. Therefore it is important to control the activity directly. This control can be some kind of kinetic game, because here physical activity needs to be controlled and paced in order to improve attention. Another way of direct control is when we appoint "tour guides" to each micro-group (e.g. the Taskmasters at first, then the Encouragers, and so forth). The tour guide interprets the next placard the production of which he was involved in to his own micro-group, or directs the interpretation of the group-work not known by the group by guiding questions.

The steps of group Round Robin

1. Micro-groups prepare to present their joint work in some form (e.g. student quartet, Round Robin, window, the written product of a roundtable session) – e.g. they make a placard or notes, if they have not prepared it beforehand; they collect items in a window or in a roundtable.
2. Initially the teacher, later the groups themselves control the utterances of each group (I.e. they respective representatives) one by one, for the same time, or equal participation in the revision of the written products.
3. Each group (and possibly each group member) takes a turn in Round Robin. Most of the statements are recorded in a visual form as well. The work of each group reaches all other groups in case of written and moving group Round Robin.

The manifestation of fundamental co-operative principles in group Round Robin

Equal participation and access

It provides an opportunity for expression equally for each group. It makes the knowledge of each group accessible to any other group.

In case of the written Round Robin prepared in the form of roundtable, e.g. tasksetting, it is also granted that everybody takes part individually in preparing and processing the written documents. Although in group Round Robin the scene of publicity is the large group, there is still opportunity for individual participation and access for each participant. Group Round Robin with notes, when everyone takes a note to the board, is such an example. As we see, co-operative learning structures also use frontal tools, since there are tasks which are necessary to be performed in the publicity of the whole class. The essential difference from the techniques traditionally called frontal is ensuring equal participation and the chance of equal individual access supported by joint preparation. It is a crucial difference that group Round Robin always has to be preceded by parallel interaction, so that the notes can be assessed and weighted in the publicity of the micro-group before they get out. This may be one of the par excellence evidences in favour of inclusive pedagogy, that is, the more equal access each individual has to common goods of knowledge, the deeper and more wide-ranging knowledge the whole community learning together has, even at the level of the individual.

Personal responsibility and individual accountability

The joint work of the group is represented by each members individually as well. Personal responsibility extends to the publicity outside the micro-group. Loyalty to the other groups also strengthens loyalty to group members: “I am working more carefully on my task now, because not only you will listen to me, but the other groups as well!”

Personally inclusive parallel interaction

It is present in case of written and moving group Round Robins, where groups meet each other's productions at the same time, in a parallel way.

Oral group Round Robin or Round Robin with notes count as frontal structures, although they always succeed or conclude a micro-group activity, that is, an activity granting parallel interaction concerning the large group! However, this step does not include parallel interaction. Individual participation can be reinforced by means of individual note-taking. The best solution is when individuals in the audience listen to and record the presentations of other groups with different points in mind. The teacher or the presenting group can check their understanding by random questions.

Constructive and encouraging interdependence

Since Group Round Robin is the conclusive part of some – shorter or longer – micro-group activity, no group can conceal the fact that they have not been able to complete something for a long time – the groups can and do build on the others' work. The learning process in group round Robin is based on the project products of individual micro-groups, that is, micro-groups obtain complex knowledge by referring to each others' work. Large groups usually make their joint notes and references on the basis of the project products presented during group Round Robins. This is initially co-ordinated by the teacher, later by the groups themselves. This jointly produced note strengthens positive interdependence further.

Consciously improved personal, social and cognitive competencies

There is an excellent chance to develop the skills of self-control (the ability to handle hindering emotions), performance motivation and commitment (adaptation to group goals, identification with goal results). In group Round Robin – the same way as in Round Robin – the **publicity of performance** of being structures, and not only the publicity of good performance. For example during a traditional frontal lesson I may evade revealing the fact that I am not able to follow the explanations on the board. Group Round Robin, that is the publicity of the joint performance of individuals working together in micro-groups, eliminates the chance of going through collective learning periods without understanding, since the performance of the group receives feedback every time.

Participants recognise the strengths and weaknesses of their own and the other groups as well, thus being able to give and ask for help in a partner-centred way. By appreciating diversity they provide an opportunity for other groups to succeed, and with the help of group Round Robin they are able to realise the actual moods and resources of the large group. In Goleman's words, they obtain a kind of "political consciousness".

From learning competencies, here we particularly highlight individual presentation in front of a large group, the summary of joint opinions or solutions. Group round Robin helps the ability to speak publicly by the fact that the individual can prepare for it in the micro-group, so they have the support of their own micro-group during the presentation.

5.4. Group jigsaw

- *The easiest way of achieving co-operation between children is that when they are only able to complete the jigsaw puzzle of the lesson together.*

A short definition of group jigsaw

Everyone in a micro-group gets a different task according to their abilities, but these tasks are complementary within the micro-group. Members work on their own task or segment of the lesson. When they finish, they all teach the others their own segment or important knowledge related to the task, one by one.

A tool for differentiation and inclusion

Jigsaw is a structure within the micro-group in which the content sources (subject materials, textbook, references, learning aids, ways of learning, etc.) are received by the group members in segments. They need to put together the available materials like a jigsaw puzzle. Group jigsaw – after the distribution of segments – always starts with individual processing, when the members work individually on different segments and with different sources, which they convey to the others then.

The division of content materials is possible in as many ways as teachers prepare their lesson plans.

For example, when reviewing a section, we can divide the contents of a whole lesson, or even a whole topic between the members of a group. But we can as well choose to process a topic or an era from different aspects or according to different authors, e.g. in secondary school. It is possible to create a jigsaw of the sequential steps of a process or events. For example when children get three parts of a folk tale and they have to put them in the correct order. In comparison with the traditional – and, it is true, essential – triad of “introduction, main body, conclusion”, they will be able to discover further, more exquisite formal elements of textual cohesion.

With the help of the jigsaw structure education really can be made inclusive: everyone can choose or get a segment, source or way of processing in accordance with their needs or attainment. This way the system adapts to the student in reality, ensuring equal participation and contribution to joint learning and success without extra lessons and private tutors. As mentioned in the previous chapter, jigsaw can be applied on the basis of the “filters” of the ways of acquisition, perception and comprehension. When a child in the micro-group is still only getting acquainted with books, the other one already collects horse breeds from a book about horses. And their third peers lists the features of horses based on her own (complex – tactile, visual, verbal, olfactory, kinaesthetic) experience – since she rides a horse.

The steps of group jigsaw

1. Each group gets as many segments of the material as the number of its members.
2. The segments are distributed by consensual choice or by the teacher's instruction within the group.
3. Individual reading – each member works individually.
4. Individual note-taking – each member works individually (e.g. in a chart).
5. Individual presentation – in Round Robin, based on individual notes (co-ordinated by the Encourager).
6. Collective interpretation (co-ordinated e.g. by the Taskmaster). Making a collective product – note, placard – based on individual work and joint interpretation (it is expedient to have it co-ordinated by the Recorder).

The manifestation of fundamental co-operative principles in group jigsaw

Equal participation and access

Everyone has their own task to which they are provided with personalised aspects, and about which they have to report to the others in a later step of the jigsaw. For presentation, group members can use e.g. Round Robin or roundtable, thus strengthening enhancing equal access to help from their own group.

Personal responsibility and individual accountability

During individual processing everybody has to complete their own task so that the group can access the whole material and can be successful in acquiring knowledge.

During the presentation the Round Robins of the Encourager and the Taskmaster ensure immediate and individual monitoring and report on individually completed tasks.

Personally inclusive parallel interaction

Jigsaw structure ensures sharing information, so each micro-group works independently and interactively in order to gain access to each other's segments, thus manifesting the principle of parallel interaction in the large group. Since in the micro-group individual work takes place, here we cannot speak of parallel interaction.

Constructive and encouraging interdependence

Jigsaw is optimal from the point that group members only can obtain the “subject material”²⁴ as a whole if they build on each other. The necessity to see it as a whole inspires collective interpretation and real individual work. Their collective knowledge can be represented e.g. on the placards or posters they make together, that is, group members visually manifest their work built on each other’s performance.

Consciously improved personal, social and cognitive competencies

In jigsaw, higher levels of personal competencies are present: individual responsibility, conscientiousness and even innovation, when someone becomes open to new ideas and approaches. In jigsaw every student contributes to collective learning with some kind of individual effort and production in accordance with their abilities, needs and development plans.

Social competencies are the ones which are really in the focus here: communication, leadership, conflict management, management of changes and team spirit. When learning together arises from the jigsaw of individual performances, we direct the members of groups learning together towards individual learning. For example, in the history lesson – one person has to study economy, another social structure, the third culture, the fourth international relations – they necessarily read, interpret, take notes and give presentations individually.

Let us see how differentiated instruction can be manifest in the jigsaw structure.

In our fourth-grade micro-group learning about domestic animals, the pupil who is able to read book on his own, can gather information e.g. about horses or other domestic animals which cannot be found in the course book, only in other “animal books”. He will be the Librarian, and his first task is to find “animal books” on his own. His goal is to task as beautiful ones as possible, with much data. Another child collects information from the textbook – by underlining and taking notes – she will be the Recorder. The third group member – who is still only getting acquainted with books – writes down which animals they are going to learn about on the basis of the titles and pictures – he will be our Taskmaster.

Later the Librarian collects the information not found in the textbook on the basis of the Recorder’s work. The Recorder selects the next animal to be made notes of from the Taskmaster’s list.

To check, the Librarian inspects if the Taskmaster has managed to collect all the animals from the course book, and the Recorder interpreting the text checks if there really is any additional information in the “animal books” from the library, and adds them to the collective note about the given animal. The Taskmaster finds and underlines the notes of the Recorder about horses, etc. in his own book.

We can see in this example that group members can practise various forms of learning even at different levels, moreover, they can make use of each other’s work.

The Taskmaster working on the basis of textbook chapter headlines and pictures has made a list of the animals to be “learned”. This will serve as the academic basis of the group.

The Recorder has made a note and presented it to the others. Later it will serve as a sample for further notes to be taken.

The taskmaster – who is only beginning to read for real – reaches for the horse note made by the co-ordination of the Recorder for help so that he can find underline the important parts in his own book. He feels an urge to find some new information that may be added to the Recorder’s note. He keeps searching for the Recorder’s texts in his own book until he is able to take a similar note of the next animal himself. When he is able to do this, he takes over the role of the Recorder until he has practised taking notes well enough.

²⁴ In our opinion, there exists no such thing as „subject material”. We rather speak about information and cultural values, to the approach of which textbooks are not necessarily the best means. Sometimes a novel, a logic puzzle, a collective experience, etc. takes us closer to it during learning together.

Meanwhile, the Recorder checks the Librarian's information obtained from other books about horses, until she also takes fancy to do individual research in the library, and when she has given her role over to the Taskmaster, she can be the next Librarian.

The Librarian working individually collects books from the library to the list assembled by the Taskmaster, and makes a bibliography. They will have a thematic list, a continuously complemented bibliography, and a collectively complemented and checked note based on textbooks and other sources about each domestic animal to be studied. The Librarian – and the others as well – choose as they wish, but exclusively on the basis of the project products they have made. The Taskmaster only works and checks the schoolbook note on the basis of the Recorder's notes. The Recorder only checks and assembles the Librarian's information in the collective note, and/or takes notes individually of the textbook about an animal the taskmaster has written on the list, especially when there are other sources as well in the bibliography list. The Librarian only can choose books about an animal which is listed in the Taskmaster's list. He immediately has to write down the animal he has chosen, and/or he can choose an animal about which there already is a textbook note, since additional information has to be found and taken notes of.

The Librarian, besides taking notes, also can invent some tasks for his peers to incite them to read, so he will become a Propagator, since his role is being taken over by the Recorder, who is becoming a Librarian. The jigsaw outlined above can make these roles redundant within two or three months, or at most in a year – maybe two – at the age of 10-12. It is very useful if they have the chance to gain experience about domestic animals, maybe even some work experience as well.

After a while students divide thematic reading comprehension tasks on their own: they process the course book text, collect additional sources and process the text from these sources, compare texts from different sources and document them independently. They give mutual help with each other's learning, learning individually. At this point, a new stage of learning together starts...

5.5. Expert jigsaw

- *If we think it important to give children individual tasks within their micro-groups, it is also important to realise that their individual attempts also can be supported by their peers working in other micro-groups!*

A short definition of expert jigsaw

Expert jigsaw is an inter-group structure based on the division of content sources ("subject material") between groups.

The essential difference from simple jigsaw here is the fact that while someone has a task alone in their group, in each of the other micro-groups there is one person who has the same task. In expert jigsaw the participants working on the same task or segment of the material make up a new micro-group, this is what we call an "expert group". Its members become experts in their topic. Then they go back their original micro-groups and, like in group jigsaw, teach their own segment or the most important conclusions of their task.

Co-operation between micro-groups during learning together

The division of the content to be processed and learned together is possible in as many ways as the numbers of project plans made. For example, a section of the material or all chapters of a topic can be divided between the groups. Division can happen either by free choice or under the teacher's guidance. Sections of different amount or depth, but of complementary nature also can be distributed, thus serving the purpose of differentiation.

Steps of expert jigsaw

1. Forming expert groups

The easiest solution is when the number of expert groups can be divided by the number of members in original micro-groups. For example if there are four people in a group, they can take part in the work of four different expert groups at the same time.

For example, when learning about plane figures – in grade 2, in a class of 32 – I make up two “triangle expert groups” of 4 members each, two “circle groups”, two “square ones” and two “rectangle” groups. The expert groups get acquainted with plane figures in various ways (practising “Waldorfian” form drawing techniques, cutting out, colouring, transforming, using them for making pictures, measuring their sides or perhaps angles, etc.). The expert groups working on the same plane figure send envoys to each other for checking, so that the questions, remarks, conclusions, and knowledge of the two groups can be collated. The experts group can be made up randomly, for example on the account of randomly assigned roles; that is, the same roles of the different micro-groups are gathered in an expert group: Encouragers to one of them, Taskmasters to another one, etc. They also can be made up consciously – for instance, by using named collage pieces.

2. Providing “expert materials”

Groups work with the provided materials in student quartet or jigsaw structures. Sticking to the example of plane figures, they get acquainted with the same shape in four different ways, then take turns in changing their methods in rotation. The second possibility helps in differentiation again.

3. Individual reading, comprehension, note-taking, problem-solving

If the text, exercise, etc. is the same, one participant reads it out while the others take notes; then the next one starts reading, and so on. If the text, exercise, etc. is different for everyone, first they work and take notes individually, then they refer to their work for the members of the expert group, like in group jigsaw.

4. Joint interpretation; the expert group summarises their conclusions and results

Envoys are sent out, if necessary, so that the conclusions of the other expert group working on the same topic also can get into the expert material.

5. Making joint note or document comprehensible for the others

It can be documented in an “expert project book”, in individual notes, or in a public expert poster. In our example of second-graders, they write a sentence about each “expert activity” (cutting out, cutting up, drawing, etc.). The written work of expert group – they being second-graders – can be helped by giving them the basic structures of the sentences, and they only have to fill in the missing parts.

6. Taking individual notes; preparing for return to the original group; checking if each expert will be able to convey the knowledge of their expert group to their original ones – based on their joint notes, own ideas and the guidance of others.

7. Return to the original groups

For examples if I have formed expert groups by putting persons with the same roles in one group, the everybody from the expert group of Encouragers goes back to their original groups.

8. Each member presents their own field of expertise in the micro-group

After the presentation, the expert checks understanding by detailed questioning of their peers. Round Robin is co-ordinated by the Encourager.

9. Collective interpretation based on the presentation

It can be guided e.g. by the Taskmaster with round Robin (e.g. poll). The different expert materials brought from expert groups have to be processed together in the original micro-groups again, so that the “non-expert” members can access expert topics, ask questions, brainstorm, repeat what they have learned.

10. Making a collective, summarised note based on the work of the four expert groups

It can be written in a project book, individually into notebooks, or on a public poster.

The manifestation of fundamental co-operative principles in group jigsaw

Equal participation and access

The jigsaw only becomes complete when everybody takes part in the learning processes equally, and this is structurally granted in the structure of expert jigsaw. It can prove well how closely equal participation and equal access are connected. The more efficient one's participation in the jigsaw, the deeper and more comprehensive individuals' knowledge will be in the field of the others'.

Personal responsibility and individual accountability

By the fact that everybody works “far” from their group, in another group, then returns, it will be revealed clearly for the others what they have done. A trivial example: if all the other groups know that a triangle has three sides, but our group does not, then it is clear that things got stuck at our “triangle expert”.

Personally inclusive parallel interaction

All sections are being processed in the expert groups at the same time. For example, in history, the simultaneously existing realms and countries of an era are there at the same time in the expert groups. Thus when the original micro-groups sum up their knowledge, they will be able to observe international relations and to make comparisons of various countries.

Learning forms – individual reading, note-taking, presentation, collective interpretation and note-taking – are practised simultaneously, in a parallel way, in interactions with their expert peers, in contrast to the individual work of the preparation stage of group jigsaw.

Constructive and encouraging interdependence

The group member sent to the expert group will obtain materials and “expertise” the other group members will access through him or her. Thus, the members of the micro-group depend on each other when conveying their knowledge. At the same time, no one is left alone, since they prepare together in the expert group with the representatives of other micro-groups who are responsible for the same task/field. Different fields of expertise inspire group members to collective interpretation and note-taking, since this is the only way to acquire each other's expertise and access the whole topic.

Consciously improved personal, social and cognitive competencies

In the field of personal competencies the powerful positive interdependence of expert jigsaw is particularly suitable for improving reliability, conscientiousness and adaptability. Among social competencies, the same skills can be emphasised as in case of group jigsaw: communication, leadership, conflict handling, change management, team spirit.

Expert mosaic enhances the development of competencies necessary for individual learning more than simple jigsaw, because it provides an additional support group for the expert activity as well. The expert group. This way the individual will not be left alone to process the chosen or assigned task. (In contrast, in jigsaw everybody works individually on their “expert field”.) Getting back to our example of plane figures, children learn about them in expert groups of four. For example they have to cut out their respective shapes together. Each group is given a sheet of paper with as many plane figures (triangle, circle, square or rectangle) as the number of people in the expert group. They have to cut them out in the following way: one is cutting while the others hold the paper for him or her, but the one who is cutting cannot touch the paper. When he has finished, he passes the scissors and holds the paper for the next one. This way everyone will have a shape that they can take with them to their original group as a “visual aid”. When they have cut out the forms, they also can try to draw the shape in crayon, e.g. with the help of Waldorf’s form drawing techniques, etc.

When they have approached the task from every aspect in accordance with individual and collective development plans, they return to their original groups and present essential information and forms of processing – e.g. form drawing techniques – to their peers. They do all these with the help of their project products made in the expert group – for example with the cut out shape or showing how to make a drawing of the shape.

Chapter 6

FURTHER CO-OPERATIVE STRUCTURES

Introduction

In this chapter we would like to introduce a few simple or complex co-operative structures, mainly from the viewpoint of the teacher.

Our goal with *A handbook for learning together* is to introduce readers to the basics of co-operative learning, therefore we emphasise the generative nature of the presented structures here. We will see that the currently used co-operative structures can be deduced from a few basic ones. Readers of the previous two editions have indicated that they would like to read about more methodological examples and co-operative structures in the next edition of our handbook. Therefore we have extended the chapters introducing basic structures and analysing them from the aspect of co-operative principles with some further structures (roundtable, task assignment, round Robin with notes).

In this chapter our main point is not to examine fundamental co-operative principles, since it is certainly clear from the previous chapters that any structure can be regarded as co-operative if the co-operative principles are manifest in them, possibly at the same time. It might be the reader's task to examine the structures presented below from the point of co-operative principles, as in the previous chapter. That is, it should be examined whether we rightfully claim that the fundamental co-operative principles are present in the structures presented below.

However, here we attempt to make our readers be able to visualise the whole process during reading, and to understand the methodological aspects of the structures. We did not only have descriptions in mind, but to present different but equally important approaches. Therefore at some points we dwell on the tiniest details, illustrating our subject by examples, while at other points we present complex series of steps. In the appendix attached to the last structure (pair of pairs) we present the short description of 20 co-operative structures, maintaining our point introduced – and perhaps proven – claim that co-operative structures can be deduced from a few basic structures, upon which an infinite variety of structures can be built following the fundamental co-operative principles. Thus, in introducing co-operative learning it is not our explicit goal to introduce and teach as many actual structures as possible, but to demonstrate the relationship between basic structures and fundamental principles. However, we have collected the short definitions of the structures discussed in the book at the end of our handbook, attaching a sequence of steps to process the collection.

6.1. Paper and scissors

- *Sometimes the most simple and trivial exercises can enhance co-operation in the most successful way! Pay attention to the fact that you wish to promote co-operation between different people and personalities – begin with simple steps and unchallenging tasks.*

Opening up personal spaces

This is one of the most simple co-operative structures that can symbolise constructive and encouraging interdependence.

Give each micro-group – regardless of their numbers – only one sheet of coloured paper (a different colour for each group) and one pair of scissors. Their task is to cut the sheet into as many pieces as many people there are in the group, but the one who has the scissors cannot touch the sheet. The other members, however, have to move (fold, hold to the scissors, etc.) the paper together, and they

cannot let it go. Groups make as many pieces of paper (e.g. for a task of note Round Robin) as the number of their members, and thanks to different colours it also can be seen which group the pieces have been made by.

There is a frequently arising prejudice against co-operative learning, namely whether it is not more than merely playing around. Maybe it has been unravelled from the previous chapters that co-operative learning actually means structuring of learning and not organising games.

However, paper and scissors is a playful structure indeed. The question could arise what kind of developmental effects it may have besides the micro-group cheering at the fact how difficult it is for three people to hold and fold a sheet of paper at the same time.

One function of paper and scissors is exactly to help to get group members together, to draw them closer. The thing the Johnsons describe as “face to face, knee to knee” interaction as realised in a particularly spectacular way in paper and scissors. Group members fiddle in each other’s personal space during the task, that is, they get a little closer to each other in comparison to their normal personal spheres. It is an important step, especially in case of groups formed afresh, thus this co-operative structure serves as a very good tool for group-development – in addition to the fact that the teacher does not have to make the pieces of paper herself, it is done by the micro-groups.

It is an important aspect – especially in case of newly formed micro-groups – that we can monitor and improve smooth co-operation within the micro-group before challenging them with “more serious” tasks. It is expedient to use structures that “have no stakes” here, i.e. nobody will feel that they have to perform within the micro-group beyond their power. Paper and scissors just a kind of playful task with no stakes, which draws the group together, helps to create the space and informality of personal interactions, without setting a real challenge to anyone. Its goal is that by the time they work on serious learning projects, “putting their heads together” will be natural, to get them used to the fact the task within the group must be at palpable proximity for everyone.

When we used paper and scissors in a group several times, we felt that the task had become quite mechanic, therefore we came to the conclusion that we would add a question to think about.

The groups – after they already have performed the task of paper and scissors successfully – get the following task:

The task has to be completed with the least cuttings possible! Groups usually get to twice-cut solutions. The next step is cutting less than twice.

The first solution is usually no cutting at all: they tear the sheet in three or four pieces, thus they do not need to cut it at all. Then comes the solution of outlines and remnants. Then we start to regard only cutting along a straight line as a valid cut. That is, the task now sounds as: divide the sheet of paper in four equal parts in a way that the one who has the scissors can’t touch the paper which has to be moved (folded and held to the scissors) by all other group members.

We have managed to collect 7 or 8 solutions so far in different groups under these conditions, without revealing a single solution to them! When we invented this task we found only one technique which grants solution for groups of 3-6 alike, all the others have been invented by the participating groups.

6.2. Tree of expectations

- *Focus on learning instead of teaching! Get acquainted with participants, their personal and social competencies, prior knowledge, existing constructs of knowledge.*
- *The bulk of students having been socialised in traditional school systems would not admit it to their teachers that they do not know about or are not interested in anything of the teachers’ topics.*

Mapping and following expectations

The following co-operative structure provides an excellent tool for obtaining a deeper understanding of students and for grounding individual development plans. It has low risks in itself, because everyone can reveal as much of their knowledge as they wish, and can ask as much as they want. Their revealed knowledge or their questions will not be graded, that is, there is no risk in admitting their knowing or not knowing honestly. Tree of expectations, as a co-operative learning structure promotes equal participation by the fact that it does not set great challenges as a condition of participation, but it creates the opportunity of “any depth of knowledge” and “any question” for everyone. It is a co-operative learning structure fundamentally determining the activity of learning as a whole, since it is a means of assisting the launching and more accurate planning of the development and learning process.

We connect the structure of the tree of expectations with the structures of window, note Round Robin and **KWL chart**, since the KWL chart as a starting-point for creating individual development plans can be utilised as well in co-operative learning. It is a tool of individualisation. In the previous chapters we have referred to the fact that co-operative learning starts from individual needs and demands concerning every participant of learning (e.g. all students - teacher).

KWL chart consists of four columns; the first one is date-wide, the other three are of the same width and their cells are high and wide enough to write sentences into them.

The first column always has the date of filling the chart; in the second one, with the headline “What do you already KNOW?” goes what the person knows about the topic in question at the moment (ranging from “nothing” to technical terms and accurate notions). The next column, entitled “What do you WANT to know?” has the issues the person would like to learn in connection with the topic or field (they also can range from “nothing” or naive proposals to concrete and professional questions). Later, at a certain point of co-operative learning, when they already have made some progress in the topic and have some conceptual anchors, students indicate in the column headlined “What will you LEARN?” what they will have learn in connection with the topic. At a later stage – filling in the date again – participants write what they already know or have learned, what they would like to learn and wish to learn later concerning the given topic... filling in the whole KWL chart during the development process.

It is important to note that an entry should not exceed 3-5 items (remarks, sentences, notions) to keep the information manageable.

We also can state this as a general rule in co-operative learning; when students take notes for a Round Robin or a window (they collect dates or notions, etc.), let us make it possible to write down only 3-5 items, highlighting the fact that they can write less but not more than that.

It is important to handle information in a structured way in micro-group work as well, especially from the point of equal participation and access. If there is no co-operative structure then there will be no guarantee for some persons not domineering over the group with their questions, or some others, who would not comment on the topic, being able to ask their questions and tell their answers. If one person writes 25 items while another only three, access is not proportionate, since the one writing 25 ones demands much more time of the group's attention than the one with 3 items. It does not mean that those who write 25 should know less, but that they should try to arrange their items in a structure of 4-6 categories.

That is to say, with a simple sequential structure – write 3-5 items about the given topic! – we enable the realisation of sequencing. Every person elaborates on a single item at the same time, before another group member's turn. Structured gathering of information allows for information-sharing to be completed. This way group-work will not get drowned into an infinite series of essayistic monologues. The 3-5 division also corresponds to the nature of our short-term memory that is able to handle structures of 5-7 items efficiently.

The entries on knowledge are always general initially, reflecting naive attitudes or revealing

lack of knowledge in any student group, regardless of the fact whether the participants are children or adults, non-professionals or experts. If learning together is successful, entries become more and more accurate, professional, topic-oriented, and the KWL charts are increasingly able to outline individual learning goals, frames of interpretations, knowledge, questions and deficiencies.

The KWL chart is filled in anyway, it is a very rare occasion when someone does not write anything at all, or writes that he or she is not interested in anything at all. And the goal of using co-operative structures is to make participants able to put their doubts, non-understanding, not-knowing, lack of interest in words as honestly as possible concerning the respective topic. Individual development in co-operative learning will be successful when the educator is able to see actual levels of interest and knowledge. Of course, a teacher can see the interests of as students clearly even behind the answers that were just “scribbled” in the chart, but participants fill in the KWL chart for their own sake; the goal is that the participants should understand where their attitude to the topic arises from, so that they can feel more accepted within the learning process.

Hungarian pedagogical culture often lacks acceptance of not knowing or lack of interest. However, is it not the task of teachers working in public education not to refuse those who do not want to learn, but to enable them to learn autonomously? If I cannot see and understand that the participants are not addressed, not moved by the topic, they are not interested and cannot make connections to their lives, it will be hard to “motivate” them to learn, and teachers can easily turn to games of power. The goal, for both of us, is to be aware of real attitudes and interests, so that we can structure our further activities on their basis. In my group I have mentioned several times, overtly admitting lack of interest was the fact that led to the solution; while if I had stuck to the well-planned syllabus, this sincere relationship would have been corrupted very soon. Our syllabus arising from lack of interest, however, became very successful – as I already have referred to that – since three months later the children, who never had read before and had flouted literature, were editing their own literary journal.

KWL chart in itself, of course, is not a co-operative tool, it can be used in any forms of traditional class-work as well, the question is what happens to the information revealed in the chart subsequently. However, joining it with the tree of expectations, we can use KWL charts for co-operative learning purposes as well.

Below we present a version of the tree of expectations, step by step:

- 1. Everybody receives a size A/3 sheet of paper on which they make their own KWL chart in one particular colour.*
- 2. Everyone writes 3-5 items in the first two columns individually.*
- 3. They collect the items in a window by means of Round Robin. The items in the columns “I KNOW” are written by the Recorder with his own colour marker in a window, while the Taskmaster writes the items under “I WANT to know” in another window, in another colour. In both cases, Round Robin is controlled by the Encourager, while the Timekeeper makes sure that they finish within the time limit.*
- 4. After collecting them, the group chooses the four most important items they know, and the four most important things they want to know. (They always choose as many items as the number of group members.) These are underlined by the Timekeeper in a third colour (four important things from “I KNOW”) and by the Encourager in a fourth colour (four important things from “I WANT to know”). Then they write the name of the group in the centre of the window (Recorder) and the letters KWL (Taskmaster). The teacher puts up a tree of expectations drawn on a big sheet of paper on the board.*
- 5. Each group is given a sheet of paper in different colours. Micro-group members pair up (at their will, or e.g. in pairs of Recorder-Encourager and Taskmaster-Timekeeper).*
- 6. They cut the sheet in half by means of Paper and scissors.*

7. Pairs grab a piece of colour paper and a pair of scissors.
8. One pair looks at the underlined "KNOW" items, while the other at the "WANT to know" items, either as they divide them between themselves, or as the teacher assigns them.
9. One of the pairs (e.g. Recorder-Encourager) cuts out 4 flowers of the coloured sheet by way of Paper and scissors, big ones, so that they even can write sentences on them.
10. The other pair (Taskmaster-Timekeeper) cuts out 4 pieces of fruit in the same way.
11. They write the four items from I KNOW on the pieces of fruit individually in a pair, and the other pair writes the four underlined items from I WANT TO KNOW on the flowers.
12. When they are ready, everyone gets a flower and a fruit with an item on it.
13. They present the flowers and fruits by means of Note Round Robin, then they use Blu-tack to put them on the expectation tree of the class. If there is a group that wishes to put further flowers of fruits on the tree, of course, we must allow that, although it is important to emphasise that the tree only should include the items regarded as most important, since all of these have been recorded in the windows made by the micro-groups.
14. After each learning session the class returns to the tree of expectations: the representatives of each micro-group (e.g. the Taskmaster) take off their previously stuck flowers.
15. They deal them out in the micro-groups, and by means of Round Robin they discuss if they already have got an answer for the question on the flower. If yes, they put the answer in words and write it on the back of the flower, and then cut the flower to the shape of fruit – perhaps with Paper and scissors – and discard the cut-off parts (the question and the answer must be on the fruit!). If they see that they have not found an answer to their earlier question, they do not write anything on the flower.
16. By way of Note Round Robin, we collect the flowers having ripened into fruit in a basket drawn under the tree, then we put the flowers back on the branches.
17. To take our tree of expectations further, we can get children to write new items in their KWL charts, thus creating more flowers and fruit for the tree.

When, concluding a learning session, we get back to the tree of expectations, **our aim is not to make every flower – unreasonably – yield fruit, but to get an accurate picture of the progress of the group, their still existing questions and attained knowledge.** The remaining flowers more and more accurately indicate the questions left from processing, and the issues to be focussed on during structuring learning.

The fruits of knowledge and question-flowers on the tree of expectations outline the information connected to the topic which the participants think to know, and the lines of interest that may help in planning further learning processes, to the whole class. When the flowers, or at least some of them have yielded fruit, micro-groups can write new flowers which hopefully will be more accurate and/or professional.

There are cases when the tree of expectations stops at the level of elaboration outlined in the above example. However, we can take it even further: we give the fruits back to the groups that have made them, with the task to make detailed notes on the topics they think they know and they find important, then to present these to the other groups by means of e.g. written group Round Robin or expert jigsaw. Meanwhile the teacher takes on raising the answering of emerging questions to the focus of structuring learning, using them as a kind of guideline.

The windows made during the above steps contain all knowledge and question items, therefore it is expedient to make these windows made by the micro-groups public and accessible, for example, to tape them on the group-desks. Or to solve the detailed elaboration of the knowledge-fruits which are not on the tree but are included in the window within the micro-group, individually.

It is useful to choose the detailing of knowledge items when the teacher concludes from the fruits containing a sentence or a term that there is something to work on indeed, because the revealed knowledge is not thorough enough.

It is also worth to dedicate some time to elaborate on general or inadequate answers, since it gives a more accurate picture to the teacher in terms of what kind of misunderstandings, attitudes and deficiencies he has to face in the process of mutual learning.

In case of the questions which are not on the tree but are there in the window, we can assign volunteering individuals to try to find answers continuously. The aspects emerging in them can be continuously articulated both during micro-group work in the publicity of the whole class.

During the production of the expectation tree, at the section when they perform collection on pieces of paper, i.e. when they put the flowers and fruits on the tree, the teacher basically only has to ask interpretive questions. **The purpose of the tree of expectations is not checking and assessment, but recording the actual status of their knowledge and to collect the items and questions thought to be important by the micro-groups for the publicity of the large group.**

6.3. Guided collage jigsaw

- *Playful forms of guided group-formation provide us with an excellent opportunity for mapping the group! Do not only guide the games, but observe happenings and behaviours. Get acquainted with the participants!*

Observing the groups at group-formation

This structure has been described in the section about group-formation, however, let us examine now how we can observe important elements of behaviour with the help of a simple and playful task. We plan the micro-groups in advance for this structure, we design their make-up – based on sociometry and heterogeneity on the account of existing and developable skills.

As preparation, take as many blank sheets of colour paper (or pictures connected to our topic, or short, printed texts) as the number of micro-groups you intend to form. Write the names of the children belonging to the same micro-group in the four corners of the sheet, then cut up the sheet in a way that each name goes into a different piece.

Participants draw randomly and simultaneously from the pieces (collage pieces) with the names turned down. When everybody has drawn one, they check whose name is on the paper, and they give it to that person. If they find their own name, they keep it. When they have given it to the person with the name, they are waiting for someone to come up to them with their piece. When everybody has their own names, you can assign the next task: everyone finds the people whose pieces complete theirs perfectly along the sides, putting the colour pieces (pictures, texts) together like a collage.

The groups that have found each other choose a group-desk and sit down.

When each group has sat down, they glue their pieces to the big size A/3 sheet in a way that the pieces together form some/any kind of shape. Everyone can move and glue only their own pieces!

Later you can tell the groups that have completed their other tasks before the others to complete their composition with different colour markers, but everyone can use only one randomly chosen colour.

In terms of methodology, guided collage jigsaw is one of the most simple ways of guided group-formation. In 3-4 minutes we have exactly those sitting at the same desk we want to, and we do not have to interfere in group-formation for a second. Moreover, it is done in a playful and active form.

When either children or adults receive their collage piece, the large group usually can be characterised by two kinds of behaviour: there are people who instantly start and go to find the owner of the piece, while others do not move, they just watch what the others do, then finally lumber over to the group they belong to. When we analysed this sequence of steps with teachers, and drew their attention to these two types of behaviour, they usually judged that the first type of behaviour (which is described as proactive) is the right one, while the other (reactive) rather refers to laziness, incapability, inhibitions. That is, initiative and activity are represented as positive values for them, while strategies based on reaction and observation is hidden by overemphasising proactive behaviour. However, if we think about it, when we need to cross a busy road, reactive strategy may be the better one...

Maybe it would not been so lucky if everyone ran around proactively to find one another, since if there are some people staying where they are, pairs or groups will find each other more easily! The point here is to observe behaviour patterns.

At a demonstration class where we learned together with a group unknown for me, when they had to glue the collage pieces together, a girl, following proactive strategy, glued her own piece own instantly, not leaving enough room for another girl's piece; it stuck out of the paper. The members were discussing what they should do now. The others group have finished, and the visiting teachers were smirking: now, this group has not even sat down and they got stuck, unable to solve a simple problem. Perceiving the increasing tension, I stepped up to the group and suggested them to solve the problem later; by that time the glued piece will be dry at least. I worked for one and a half hours with the groups, and like all of them, this particular group took part in each task and always managed to finish in time. At the end of the lesson they lifted up their collage made of the pieces and completed with markers. They stepped out of the size A/3 rectangle, and glued the stuck out piece in cubist style – extending over the frame – and while they all took an active part in the lesson, all four of them were colouring the sheet until they got a constructivist piece of art that combined the two geometrical shapes with really artful devices. All the other groups glued their pieces in the middle of the sheet. When I showed them the constructivist work, the teachers' opinion was that alas,, they could not complete their task properly, because a piece was sticking out... Is that really the point we should think of in this example?

The above example clearly shows that a constructive reactive solution reacting to a problem that slips into group-work easily, became invisible for educators preferring their own concepts and behavioural patterns.

While for me it was rather disappointing that all the other groups glued their parts in the middle, behaving as “model students”, with zero creativity, the teachers assessed any deviance from it as a mistake, regardless of the fact that the task was worded as “any composition”, and also of how much creative the solution of our group was in order to correct their mistake. Actually, seeing the work of the “faulty” group in progress, the other groups started decorating, too; one of them even copied our group's graphic and colouring ideas. What was seen as faulty and mistaken by the teachers, became a model to follow for the groups.

It is clear that the point of our example is not the “mistake” but the fact that the “faulty” group stayed on their task in a very serious, persistent and hard-working manner (since they were working on their picture parallel to their other task, and could even complete it, while the other groups could not, although that was not even in the task).

*Earlier the teachers' general complaint was that **those children were unable to focus on their task, they were not even interested in their own performance.** However, observing co-operative structures, for me it was **apparent that they were success-oriented: they do not go on until they complete a task.** I found it to be task-oriented behaviour that while all the other groups have sat down, they still were standing at a corner of their desk – standing closely –, discussing the solution, gesturing and fiddling over the A/3 sheet.*

In this group we could give the role of the Encourager to the girl throwing herself into the task fervently, and we could teach her Rally Robin to grant equal participation. She could start a Round Robin before each task (building on her proactivity), and when all the others have told their words, she can add her own thoughts (developing reactivity). The Encourager also has to make sure that Round Robin always need to be started by someone else. Thus there always be occasions when she can start it (gratifying, experiencing her proactivity) by presenting her own opinion.

Perhaps it is apparent from the above example that **by observing individual and interpersonal behaviour, and with the help of scientifically proved behaviour models (e.g. proactive/reactive) our own development plans and ideas can be suited to steps of the chosen co-operative structures.** In addition, due to the publicity of co-operative structures we can receive immediate

feedback on whether what we have planned works indeed, and we will have a collective model – the role of the Encourager – returning to which from time to time, we can adjust the development of adequate application of proactive and reactive strategies.

6.4. Pair of pairs

- *Co-operative structures enable the processing of a large amount of subject materials in class with the participation of each student.*

Ingraining a large amount of wide-ranging subject materials

This structure is a variation on jigsaw within the micro-group; not unlike Kagan's pairs-check. It works primarily in groups of four; the version for three-strong groups can be read below.

We form pairs within the micro-group (e.g. on account of roles, like Encourager-Taskmaster and Timekeeper-Recorder). Pairs are given either one task each, or individual tasks. (Thus one or two topics can be present per pair, and 2-4 topics within the micro-group, which means that in case of n micro-groups 2 or $4 \times n$ topics can be there.)

If they have a joint task, they start working on it together, assuming some role (e.g. the Encourager puts things into words, and the Taskmaster takes notes, then they swap); in case of individual tasks, they work on their own and then check and learn both topics in pairs. In any case, the concluding step is to present their topic (or topics, if they had different ones) to each other in order to check if they will be able to explain it to their peers as well.

The next step is changing pairs (e.g. Encourager-Timekeeper, Recorder-Taskmaster), thus creating mixed pairs in which at least one of them will have knowledge about each topic in the micro-group. The pairs teach each other on their topics, providing each other with the previously made notes or presentation tools by means of note Round Robin in pairs.

When all two or four topics have gone round, they change pairs again; now those work together who have not so far (Encourager-Recorder, Timekeeper-Taskmaster). The task is simple: each person questions the other one – now without notes – on their own topic, and if necessary, they clarify and reword some points.

The two or four topics have gone round the in the micro-group between the pairs, thus it can be assumed that all group members know each topic.

It is apparent that in this structure equal participation and access, constructive and encouraging interdependence, and even parallel interaction are evidently manifest. Pair-work is checked in another pairing, by learning, and this learning activity is checked once again in the third pairing. They receive continuous help: in the first pairing they have a pair to work with (if they cannot succeed in pairs, they can turn to another pair of another micro-group for help, given that there is another pair with the same topic). Then, when teaching their next pair, the previous one is still there – although working with someone else, but still accessible, still can be addressed and asked, since they are sitting at the same desk. The same is true for the third arrangement. So the opportunity for learning together is given at each step.

The only question is how the topics processed by the micro-groups would reach the other micro-groups. If we observe the situation after pair of pairs, we can see that we have thematic micro-groups in which each member knows about every topic within the group, however, the micro-groups have got acquainted with different topics within the large group, in other words, they have become experts in different topics. That is, they can be regarded as expert groups for a jigsaw activity, so there is nothing left but to restructure the class and create mixed expert groups in which each micro-group is represented by an expert!

When we restructure the large group into a jigsaw after pair of pairs, we must make sure that the new, mixed expert groups should not include more than 4-5 people.

For example, Encouragers of each group, Recorders of each group, etc. make up an expert group, and if there are 6 or 7 of them, it is more expedient to divide them into trios or quartets working parallel with each other, and I would ask for cross-checking by sending envoys. The notes taken by the pairs and micro-groups, which they used for preparation during pair of pairs, can be forwarded by the written form of group Round Robin.

It is important to highlight that in each of these new small groups there is only one representative of a micro-group, who has to know all the notes taken in the original group; even if it was made by another pair, he or she has had the opportunity to get acquainted with it during pair of pairs.

In case of written group Round Robin, we must draw attention to the fact that they need to check the conveying of new information in Round Robin. That is, when someone teaches their topic in the mixed expert group, with the help of the notes on the desk and their own notes, then they also will need to ask the others in Round Robin, with the purpose of making sure together whether everyone has understood the topic (or can solve the mathematical problem, or can summarise the historical event, relation, etc.).

If each Round robin has been completed concerning the notes, only then they can pass their notes and receive another ones. Written group Round Robin is finished when all written notes have gone around.

In case of written group Round Robin it is quite frequent that groups process and learn the materials at different paces (a group might do it more deliberately and thoroughly, while another rather focuses on the notes – both strategies are supportable, regardless of the fact that one demands more time). Therefore it is expedient to pass notes on to the desks in batches of two or four, thus some notes are omitted, which can be solved by temporal differentiation. We put in front and behind the faster group a chair, and we put an extra package on the “receiving chair” – from which they take the notes from the other group. Thus the faster group can take and pass notes at their own pace. It is important, however, that different groups should not be delayed by more than one step, otherwise it means that the time dedicated to the structure is not in correspondence with the competencies of the groups.

Kagan's inside-outside circle can contribute to jigsaw work and further ingraining – especially if we have initiated a topic by means of pair of pairs, the ingraining of which is there among our learning goals.

We link **inside-outside circle** and pair of pairs through jigsaw. Students in micro-groups learned 2-4 topics during the pair of pairs activity, then taught these to the others in jigsaw, and they learned the topics of the other micro-groups as well, so everyone knows each pair's topic or topics.

For the inside-outside circle we ask the original pairs to get hold of their shared note together from two sides, and then line up behind each other this way. Then we bend this double line – pairs still holding their notes – and form two concentric circles in a way that one person from the pairs is outside, while the other one is inside. We turn the pairs to face each other and adjust the circles, with the pairs still holding their notes! Then the paper is taken by the inside one, and the outside circle takes one step aside, while the “insiders” does not move, but questions their peers stepping up to them on their own topics. If their peers is successful, the “insiders” congratulate; if not, they give help and then check if their peers have come any closer to the topic now with their help.

We provide only a short time for this presentation and feedback; subsequently the outer circle takes another step aside, then gives another presentation with the help of the inner circle. They keep progressing this way until everybody faces their original pairs again.

Now the pairs swap; insiders become outsiders and vice versa. Now the new outsiders go around and present the topics with the help of the new insiders, and they go around until they face their original pairs again.

By the time they have completed the circle, every topic has been covered, and it also provides an excellent opportunity for developing communication and empathy.

The question might arise that if the teacher leads the large group through this triple structure (pair of pairs, jigsaw, inside-outside circle), how he or she can see into the processed topics, how he or she can interfere the processes if someone happens to take a topic afar. The key of the whole process is the structure of pair of pairs; here is the point at which such sources must be provided for participants which are able to grant successful achievements to a higher degree. The teacher can observe pair of pairs without disturbing the participants, it is enough to step beside the pairs and watch their work quietly. If she finds that they are struggling, she asks about it, and if she was right she can suggest that the group ask another pair with the same topic, or if there is no such other pair, she can draw their attention to the textbook, earlier notes, etc.

In the second step of pair of pairs she can hear the topics being taught, so she can observe not merely joint note-taking, but transferring knowledge, the results of learning and comprehension; and she can provide resources again if she finds that the topic could be elaborated further on.

During the third step – when they check learning in the third variation of pairs – it is almost enough to listen to the rhythm of the dialogues, because it becomes salient instantly when checking gets stuck somewhere, and this is another chance for providing resources.

Going on to jigsaw, at the stage of Round Robins – when members of the mixed expert groups pass on what they have learned from their peers – the teacher also has the chance to monitor how the knowledge the micro-groups have elaborated on and understood is conveyed to the other groups.

During inside-outside circle, it is also worth to listen to the rhythm of the dialogues, and there is a great opportunity to observe individual students as well. If the teacher follows the activity of a few participants in the inside-outside circle, she can see, if nothing else, by their meta-communication, how many per cents of the covered topics they have an explicit knowledge assessed as acceptable by their peers, and in how many cases the “insider” had to speak about the topic.

How thoroughly the students engage in learning and how correctly they teach their peers, it is the responsibility of participants. When the teacher interrupts the above steps the aim is not to give speeches and presentations, but to make participants increasingly able to process and convey information together.

For the sake of learning, group assessment also can be made about pair of pairs. Let us see an example!

Make a large placard with as many columns as the number of topics covered by the pairs within the whole large group. It contains three rows: write the topics in the top one – divided by columns – and make the cells of the second and third rows as wide and high that you can stick named notes in it; seven or eight ones in a cell. Have the groups make as many nametags so that each member has 6-8 of them.

Now ask every participant to list 3-5 topics which they can present very well, and 3-5 others that they should still work on in their notebooks or on a separate sheet of paper.

When this is done, ask them to recall when they were standing in the inner circle during inside-outside circle, and questioned the others about their topics. Now they have to write the names of 3-5 people on their tags (only one on each tag) who could present the topic well, and 3-5 ones to whom they had to help, who they think need some more learning in that topic (of course, they can write less names, but not more).

When the nametags are ready, they all bring them out and stick them to the respective cells under their own topics.

Now they take their notebooks or sheet and check how many places their names have been written under well-known and still deficient topics, and they indicate these on their sheet of paper. Everyone can find “experts” of their weak topics in the chart, so we also can ask them to add a name to the topics to be strengthened, so that they can ask for their advice.

It also can be interesting to see how many weak areas have been found in case of a certain individual; whether it is more or less than his or her own list, etc.

This evaluation reveals, among other things, if there are topics where there are more names to work on; or, if we have done our job well, there are no such names under most topics.

It also can be seen how exhausting inside-outside was – for example, if participants write much more deficiencies individually than their peers questioning them in the circle, it is a different situation from the one in which the list of individually recognised deficiencies is much shorter than in the feedback given by the peers. The assessment also can reveal where the learning process got stuck: as early as at pair of pairs, or later in jigsaw, since we know exactly who taught whom what and when.

Of course, we can check the effectiveness of the process in more simple ways, like testing. The purpose and role of the above self-assessment primarily is that participants can publicise their experiences arising from teaching each other, and utilise them for the sake of their own development.

6.5. Parallel expert jigsaw

- *Do not think that a large class can obstruct co-operative learning. The best way we can grant active participation in learning in case of these class is using co-operative structures.*

Jigsaw in large classes

In the last few decades in education governance “one hand did not know hat the other was doing”. While financing bodies have been encouraged or compelled to create large classes by way of financing, teachers have been expected to provide increasingly inclusive, personalised and individualising service, based on individual development plans. Conclusively, we often teach in large groups, since it is a typical symptom of Hungarian public education from nursery school to university. Expert jigsaw is easy to realise in classes or groups of 16-20. 4 or topics, one per group; then 4-5 expert groups in the class, and at the end everybody goes back to their original groups to learn and to teach. However, in a class of 25-32 further questions arise. Let us imagine a large group of 27. That means we will have 6 groups of four and one group of three. That is, seven groups in total!

There are – mostly – four people in a group, which means four topics. But if we put them together, there will be seven students in an expert group (plus we will have a group of six). These are not micro-groups any longer, and the chance of equal participation decreases due to the size of the group. And if we still can provide this opportunity by means of fundamental co-operative principles, then the time will double up in comparison with a group of four! That is, it would be better to put the experts together in the form of micro-groups (rather to have 3-4 people than 5-6)!

In such cases we divide the large group into two, more or less equal parts (in our example, four plus three groups belong together). It is useful to take care of heterogeneity here as well, that is, the available human resource must be distributed evenly, for the sake of equal access. It is expedient to divide the two parts physically as well, i.e. to create row A and row B in the classroom. It is important to make everyone aware of the fact which row they belong to, since although they sit down in micro-groups, they will have to go around individually during expert jigsaw, but within their own rows.

The four topics can be run parallel, in two times two groups. There are four people in a group; that is how we can structure the topics and the expert groups – e.g. on account of the roles (the Encouragers of rows A and B work on the same topic, the Recorders of rows A and B also work on another one, different from that of the Encouragers.. etc.) Here the question is how the information between the two rows will be available for everyone in the large group (both row A and B). It is expedient to ensure discussion at the level of expert groups. That means that when the experts reach 50% progress, they can send envoys to each other! The goal is that concerning a topic, every important piece of information needs to be present in the project products of both expert groups (it can be, for example, a jointly made note in each expert groups). The experts sit back to their original

groups (the Encouragers of row A into their original micro-groups in row A, etc.) in possession of their notes. Now they teach their topics to their peers in the micro-group, one by one (e.g. by way of Round Robin), on the basis of their notes made with their expert partners. There is only one note at any one desk at the same time, so it is always the expert of the given topic who teaches the others. These notes can be passed on to other micro-groups within a row in the form of a written groups Round Robin, thus there always will be an expert of the actual topic in any micro-group.

In our example, there is an expert missing in the only three-strong group, here the teacher can join them (which means a single, not too long direct task in the given topic), but it is better if the experts put together such notes that can be used on their own.

It is useful to allow sending envoys at this point as well, if an expert is in trouble, or an expert note is difficult to read or comprehend. These times it is better allow co-operation between the rows, because someone goes to their expert peer in another micro-group, he will interfere them in learning another topic. In contrast, in the other row it is enough to check – with the help of the placards spread on the desks – which group is discussing his topic, and there the whole micro-group will be interested in his question, since they are learning the same topic. The question from the other row serves as direct feedback on their own activity: are they able to answer the question?

When all topics have gone around (within the two rows, with the help of the their respective four notes), we can link the two rows together again, e.g. by assigning checking tasks. That is, the expert groups sit together again in the rows, and put together exercises for the others. In the next step the two rows work together in the original micro-groups, but each has a worksheet made by the expert group of the other row. The two groups can be joined even by a lying game, in which the original micro-groups make up true-or-false statements, and the whole class (i.e. the six other micro-groups) take part in the game, taking turns in guessing the false ones among a micro-group's statements.

The experience of sending envoys shows that groups working separately accept ideas and opinions from other groups depending on their openness, even when the topic is the same. Therefore it is advisable to make groups working on the same topic work with different methods learning and recording. This way sending envoys will include a task reinforcing interdependence: translation. For example, one group writes down the most important key sentences of a topic in the form of roundtable, while the other one has to make a visual summary of the same topic, which cannot contain any texts or numbers. When sending envoys, they turn the visually encoded message into text, while the text is presented visually – that is what we mean by translation here. As the second step, they prepare both the visual and the text-based summary of the topic (i.e. those who wrote a text earlier now draw, and those who drew, now write a text). In our experience translating textual-notional messages to visual ones and vice versa contributes to understanding each other significantly by opening up a variety of dimensions of articulation, thus translators can join the process of comprehension at several points, information is available through several filters (auditory and visual, obviously, but also kinaesthetic – e.g. when interpreting visual structures, dynamic pictures).

About class sizes, again. Since in one row there are only three groups, but four expert notes move around between groups, one note always have to be omitted and placed on an empty desk or chair so that the groups can pick new ones from there and put old one there back again.

With 28 people we will not have a deficiency in the previously 3-strong group, that is, a problem is eliminated although there are more people. With 29, we can set up a group of five members, in which the most difficult topic will have two experts! This time extra care needs to be taken of equal participation between them. That is, initially they need special, step-by-step attention (e.g. when teaching their original micro-group, one of them presents and the other questions the group.) With 30 people two 3-strong groups are advisable instead of one with 6 members; now we have eight groups, which makes expert jigsaw easier. With increasing sizes (31-32) 3-strong groups disappear, and a beautiful co-operative structure based on a 2X4X4 parallel expert jigsaw develops.

Chapter 7

APPENDIX

7.1. Fears and prejudices against co-operative learning

Below we list typical fears that have arisen during the last few years when introducing co-operative structures, and the prejudices that substantially limit the understanding of co-operative learning.

1. *“There is no guarantee for correct solutions when children learn together, since it is not the teacher who explains them the subject material.”*

Co-operative learning presumes that children are competent in their own learning. Traditional education also presumes it “secretly”, since it considers students able to study at home on their own, or to interpret, take notes and study frontal presentations.

The chance of mistakes and errors, of course, are present in learning together as well, but the point is that in continuous micro-group publicity it is instantly revealed, both for the teacher and for the micro-group, when someone is not aware of the solution of a problem or when the group is mistaken.

The teacher monitors the groups learning together continuously, step by step, therefore he or she will notice when joint thinking gets stuck in a group much earlier than when lecturing in front of the board and judging whether the class understands everything only from feedback by four or five children.

Learning together publicly in micro-groups allows the teacher to track and monitor individuals continuously without disturbing or hindering the learning process (e.g. by oral testing in front of the whole class).

In addition, in comparison with traditional forms of checking and assessment, the teacher can observe students’ learning and co-operation skills in much more versatile situations of learning, such as asking questions, argumentation, making joint notes, brainstorming or summarising individual collections. There is an opportunity for written and oral testing in the same way, but these are not the exclusive means of monitoring progress and learning.

If the teacher is able observe what forms of learning, behaviour or co-operation an individual is lacking, which learning competencies need to be improved, the teacher will be able to provide the proper co-operative tools for the individual or for the micro-group.

If a group has difficulties in finding the significant points of a text, the teacher can teach them some highlighting techniques, such as the interpretation chart, in which they have to fill in a chart containing incomplete sentences based on the text together (e.g. in roundtable). Later they can make answers to random questions based on the text. For example they decide which WH question to answer by rolling a dice containing question words (Who? What? Why? How? etc.).

Later they can make a chart by highlighting important questions and answer them on the basis of the text, etc.

Misunderstanding is a form of comprehension, too. Correcting misunderstandings is the correction of an existing construct of knowledge. During the process of active knowledge construction – in more fortunate cases – teacher themselves keep correcting their personal constructs as well. This correction is a part of the learning process as much as the discovery of correct solution. If we compare this correction process to the passive state when a student does not make a construct of any subject, because he attends traditional lessons totally passively – let us say, he is eating secretly – then it is clear, that misunderstanding is an obvious sign of student activity in the classroom.

2. *"I am afraid I will not progress with the subject in co-operative structuring at the same pace like when I give lectures to the class".*

It is important to ask who needs to make progress in the subject materials. The participants of learning, or those who structure the learning process, i.e. the teachers?

The teacher may "present the subject matter" at his or her own pace, but only a few students will "get the message" in the class. In this case, pleading why the others have not paid attention, why they do not work harder refers to the fact of not being aware of the nature of learning.

Guiding attention and "diligent" interpretation also includes being able to ask questions, to express interpretation and ideas in connection with the topic. During disciplined frontal work there is no chance for everyone to do these. Thus we socialise students – by means of the learning processes viewed as traditional in Hungary – not to ask their questions, only add meaningful comments, etc; that is, not to pay attention to lectures after a while. And they will not progress together with the teacher: their silence is not the silence of attention but of discipline. Although nowadays maybe the noise of not paying attention proves that a part of the class "is not progressing with the teacher"...

In co-operative learning – primarily due to the tools of equal participation and parallel interaction – everyone has the opportunity to ask questions, express ideas or their not understanding, etc. Therefore it is likely that 90-95 per cent of the whole class progress together in the learning process. This progress is granted by active learning and participation activities, in other words, it is obviously not the teacher's progress alone, but that of the participants' as well.

3. *"If the children teach other, due to the low number of lessons we certainly cannot cover as much of the subject matter as the teacher frontally covering all of it."*

The amount of the knowledge acquired within a certain period of time is not identical with the amount of lectures given within a certain period of time. For those who do not pay attention, surely not. But those who do have not performed such activities that are essential for acquiring institutional or academic knowledge either (e.g. individual reading comprehension, individual note-taking, individual research, collective interpretation, collective note-taking, individual presentation, etc.).

The means of co-operative structuring of learning make it possible for each student to use the above cognitive and interpretive schemes and learning methods, selecting from a much wider range than in case of passive listening. The "lesson to be learned" must be "delegated" to the micro-groups in a way they really can learn them with the help of various cognitive schemes.

In terms of efficient utilising of time, a 45-minute lecture (which is followed by 5-6 people out of 25-30 in a controlled way) does not seem efficient. A co-operative lesson, where only 1-2 students' co-operation needs to be granted with additional effort, is more efficient since the others deal with the subject during that time.

It is common experience that a learning community can cover a larger amount of the subject matter more thoroughly by co-operative learning (by observing its fundamental principles, especially parallel interaction, individual participation, constructive interdependence and continuous publicity).

The most time in traditional education is used up by the teacher verbalising the subject matter, which is actually available from other sources as well. This takes time from the students, and does not provide an opportunity for them to verbalise what they have attained or their comments themselves, or to approach the subject with cognitive schemes chosen from a wider range than passive listening.

4. *"Co-operative learning helps to improve personal and social skills primarily, however, it improves learning competencies or obtaining knowledge to a less extent."*

The conscious development of personal and social skills is the means, not the ends of learning in processes based on learning together. In co-operative learning we do not presume that everyone is already able to co-operate, but we provide everybody with co-operative structures and present behaviour models with the help of which each participant can develop these competencies for the sake of more efficient learning together.

However, the focus of co-operative learning is still learning. In comparison with traditional frameworks of structuring learning, the substantial difference is that it involves each and every participant efficiently in the activities necessary for learning. It provides the opportunity for every one to take part in learning forms that go beyond passive listening, that are selected from a wide range of varieties, and that are based on the processing of information of various levels. The development of personal and social skills aims at the practical realisation of this general participation.

5. *"Co-operative learning may be useful for children with a poor performance, however, it does not serve the progress of well-performing children efficiently."*

This is the most common limitative prejudice – even the Johnson brothers have dealt with it.²⁵ They prove, with reference to research, that the performance of talented children does not lag behind the performance of talented children educated within individualistic or competitive frameworks. If we compare their attainment later – for example one or two years after graduating from school – there is a significant difference indeed; in favour of the students having participated in co-operative learning. By co-operative learning, more deeply ingrained knowledge is developed, the students will be able to outline divergent cognitive and problem-solving strategies, and they react more sensitively and maturely to challenges requiring developed social competencies: they are more tolerant and empathetic to their peers.

If we take the individual as a starting point in co-operative learning, it is clear that in case of student s with more developed competencies we can accomplish individual development plans fitted to them. We can structure learning together, with the help of co-operative roles, by observing equal participation and constructive interdependence in a way that satisfies the demands and developmental needs of each participant.

The objections that plead the amount of subject matter to be learned, also wither in light of research in connection with co-operative learning. The opportunity that co-operative group-work can be interwoven with individual development goals provides an excellent chance to expand and open the one-source, course-book-centred view of education and to make participants aware of the fact knowledge does not have only one source.

The "amount of the subject matter" is limited merely by the interest of the participants – teachers and students alike. Obviously, if teachers themselves do not "step out of" the frameworks provided by textbooks, it would be difficult to expect that from their students. At the same, time, if the students cannot relate to the matter, that is, if we have not taken their demands or states concerning learning into account, or if we have not assigned their tasks in correspondence with their individual development needs, we will have a problem with the "amount" to be learned indeed.

In our opinion, the extent of general and average subject matter to be learned in Hungary is not too much, but barely enough for attaining general literacy. It seems to be too much because the ways leading to it are not appropriate. Participants are not able to acquire learning and cognitive schemes aimed at processing information such as reading comprehension, argumentation, handling charts, critical thinking, etc. within the framework of traditional education. Co-operative learning, on the other hand, shows us how to make "such an amount" available for every single student by means of the above ways of learning.

²⁵ Johnson, D. W. – Johnson, R. T. – Holubec, Ed. – Roy, P.: *Circles of learning*. Alexandria, 1984.

Excellent answers for the above questions can be found, for example, in an article by József Benda. They examined the development of reading comprehension in a (experimental) group learning in a co-operative environment and in a (control) group learning within the traditional framework; i.e. they tested how reading comprehension was developed by the influence of pedagogical work. Benda, corresponding to international research as well, found the following:

“As we have expected, the development of children in the traditional control class with disadvantaged family backgrounds increased the least (7.6%). However, the development rate of children in the experimental group belied their social backgrounds. The disadvantaged caught up with, and the advantaged significantly exceeded (16.6%) the development of the socially-economically most advantaged control group (13.7%)!”²⁶

As we can see, the students with socially more favourable backgrounds achieved their aimed level of development as the ones learning in the traditional educational framework. They did not tail away, they had good results. Significant difference can be seen in case of children with less favourable, or even disadvantaged backgrounds. Their development rate in reading comprehension was twice as much as that of their peers with similar backgrounds but learning in the traditional framework; but it even was higher than in case of their more advantaged peers! It means that co-operative learning provides these children with a real chance of “catching up” – if we regards learning as competition –, because if they are able to develop their skills faster than their peers, sooner or later they will surely get rid of the disadvantages arising from their social status and catch up with their peers. Becoming equal partners in the development of their skills as well, they will acquire wide-ranging knowledge and informedness going beyond textbooks with ease and with hard work. And most importantly, They learn how to realise their ideas in accordance with their demands and needs, in co-operation with their partners.

The article also touches upon the attitude towards school. This changed negatively in the control group in case of both social backgrounds, that is, it deteriorated. These children, may they come from whatever family background, feel increasingly worse in the traditional school. However, in co-operative classes, both groups’ attitudes improved, they liked going to school more and more. What is interesting that the attitude of advantaged children improved more, which means that it caused significant positive changes for them that their knowledge, their help and good relationship with the other students is needed, and, as we could see above, not at the expense of their performance.

6. *“Cannot we apply frontal techniques in co-operative learning?”*

Now it is time to defend frontal co-operative structures. What we know as traditional education in Hungary, does not even meet – unfortunately – the qualitative criteria of frontal teaching, although several efficient elements of frontal group techniques have emerged in Hungary as alternatives of traditional education. Co-operative learning makes use of numerous visual-frontal structures²⁷ for continuously maintaining publicity, granting equal access to the knowledge of the whole large group this way as well.

However, it is important emphasise when and to what extent we use frontal techniques in co-operative learning.

Some of the teacher’s instructions are given in the publicity of the large group indeed – step by step – but these can be replaced by previously prepared written instructions, thus large-group attention is only necessary for a few general or spontaneous instructions.

Frontal presentations can be used mostly in situations when there is no other source available

²⁶ Benda József: A kooperatív pedagógia szocializációs sikerei és lehetőségei Magyarországon. (*Új Pedagógiai Szemle*, 2002. 9. és 10. sz.) [The socialisation successes and potentials of co-operative pedagogy in Hungary]

²⁷ Excellent ideas of such techniques can be found in Peter Nissen and Uwe Iden’s book *Kurz(s)Korrektur Schule*, published in Hungarian as *Moderátoriskola*. (Transl.: Ferenc Loránd. Műszaki Könyvkiadó. Budapest, 1999.)

than the teacher, that is, when it can be read neither in the textbook, nor other books available at the library, nor on the Internet. Even in these cases, only short presentations of maximum fifteen minutes can be considered, accompanied with learnable handouts, charts aiding note-taking or previously provided points helping taking notes. The fundamental development goal of co-operative learning is to improve the skills necessary for individual processing of information in micro-groups, not to give teacher's lectures.

Another case of frontal utterances is when we react to the learning situation itself, for example with the aim of developing personal, social or cognitive skills. These utterances can be considered metalinguistic, i.e. utterances connected not to the given topic but to its processing, while reflecting on situations that may be for the edification of the large group.

Of course, co-operative learning has some co-operative frontal tools as well. Some of these need to be used with care, because they bear the non-parallel interactive nature of frontal techniques.

Such a tool is the above described group Round Robin. Groups work individually on a task, then present their findings one after the other, verbally, by way of their representatives. In a class of 8-10 micro-groups, even if everyone has only 5 minutes to speak, takes the whole lesson. Therefore it is essential to minimise the time of speech (e.g. 2-3 sentences, or presenting the solution in one sentence, etc.).

The recognition of this problem has led – by applying the principle of parallel interaction – to the written form of group Round Robin, in which the solutions and findings of the groups go around in written form. Here each group can interpret the findings of every other group at the same time, receiving their materials one after the other. However, it is useful to minimise the number of rotations here as well. For example, if all the groups have worked on the same problem, it is enough to pass their materials to one or two other groups for checking.

So co-operative learning applies frontal techniques in which all co-operative principles can be found. It is expedient to structure frontal processes in a way that these really co-operative elements dominate.

Such a structure is e.g. collection on pieces paper in a round chart. The groups work on different tasks. The tasks, which – due to constructive interdependence – are complementary, are presented in a round chart, dividing it into as many parts as the number of tasks. The representatives of the groups bring their solutions on pieces of paper – large enough to be eligible from a distance – at the same time, and they stick them to the appropriate segment of the chart. This way all the solution in the class can be checked by everyone – including the teacher – within a few minutes.

For example each group collects animals from different continents, and they stick their collection on a map of the world, in two or three minutes. The pieces of paper contain the names of the animals in large letters. Groups use different colour paper, and the members use different colour markers assigned to their roles. Thus, when the solutions are put up on the chart, we instantly can see which group or group member needs to elaborate on their task further.

In short, we can say that there are frontal elements in co-operative learning as well, but we must apply them carefully, in moderation, and keeping co-operative principles in view. That is to say, the difference results not from the difference between frontal and co-operative education, but from the presence or absence of fundamental co-operative principles.

7. *“Co-operative learning requires much more provision and preparation from the teacher's part than traditional education.”*

This fear is grounded. Co-operative learning requires a process designed and planned ahead step by step, so it is hard to imagine someone just “dropping by” a class without careful preparation.

Preparation for class here does not only mean to plan the teacher's activities, but to plan students' activities, moreover, at the level of the individual. This is one of the points where the art of

education can be grasped in co-operative learning: preparing the sources, the tasks generating learning together, monitoring together and the publicity of knowledge in a way in which we can experience the pleasure of learning with our students.

On the other hand, this hard work has the benefit that the teacher will not have to deal with the subject matter during the lesson, but he or she can observe the students freely during their shared learning activities. He can focus on what might be his task in such cases: observing personal, social and cognitive competencies, the development of their co-operative skills, and achieving academic and professional goals.

The Johnsons also highlight that the teacher basically performs two kinds of activity in the learning process: monitoring, and, if necessary, intervening. During monitoring, he observes the development of various skills of different students, and the smoothness of co-operation. However, he does not intervene when the students cannot find the solution, only when he finds that the co-operation between them is obstructed. Then he intervenes only to provide a role model, to promote co-operation, not to – for instance – tell the correct solution, since it would suggest that the knowledge of the group, in the end, depends on him.

Another side of the art of pedagogy can be achieved with the help of co-operative education when the teacher reacts to emerging and observed development needs with creative and co-operative methods in the planned learning process – that is what we called co-operative correction earlier. The point that is liberating in co-operative education demanding thorough preparation is that when learning takes place, the teacher can focus on the children, because it is not she who has to “make progress in the matter”, but can freely observe how they make progress in it. And she can dedicate her energies to the pedagogical and co-operative complementation of the observed co-operative and learning deficiencies.

8. *“Co-operative learning requires constant co-operation from everyone. What happens to those who are not willing to co-operate?”*

Co-operative learning does not demand co-operation from anyone, it does not presume that participants must be able to co-operate, but it views the process of learning in a way that it must provide opportunity for co-operation for everyone. So, co-operative learning offers the opportunity of co-operation for everyone, as well as to develop their skills of co-operation, and a real chance for participation in attaining knowledge together. From this respect it is learner-centred, that is, it takes the individuals taking part in learning as its starting point – their needs, expectations, fears, inhibitions, requests, objections, etc.

While we allow a student not willing to co-operate not to take part in any group’s work, we can find a way, together with the student, he or she will work – either all alone, but setting actual goals and deadlines, or as some kind of in-between actor, but with a concrete role.

For example he or she can be a Courier who helps sharing solutions between groups, or even monitoring learning and co-operation skills.

The most important thing here is that a personal conversation and/or a process of making acquaintance based on concrete things needs to start here. On the basis of the knowledge obtained about the student, the needs and expectations outlined in the conversation, and the discovered needs a mutual decision will help the co-operative structure we will construct in the end to be efficient.

We should not hesitate to use co-operative roles either created with drama pedagogical thoroughness or quite simple ones. The point is that we cannot leave our participants not willing to co-operate alone with their development needs and expectations. A “micro-group” with such needs and demands is formed when we ourselves turn to the individual with acceptance, understanding his or her aloofness and stand by him or her. Building on this understanding and acceptance, co-operating with him, together – like a micro-group of two –, we find out what he will do while the others work in groups.

However, with respect to accessing knowledge, the teacher still only needs to stick to co-operative principles.

If our “private student” asks about something connected to the subject, we can refer him to the groups, since we respond to individual questions from the groups in the same way. If he needs sources, he also will have to turn to the groups – except for individual resources – because the instruction is the same for every student in this case.

Observing the co-operative principles, because of its flexibility and openness, generates the co-operative tools of individualisation. By the fact that the individual can articulate his or her *not knowing* or *unwillingness* or *indifference*, the individual instantly is involved in the group learning together. The lack of ability for co-operation does not result in moral judgements in co-operative learning systems.

Co-operative learning presumes the psychological fact – as we have discussed earlier – that our abilities contributing to co-operation can be improved for a lifetime. Thus, a co-operative teacher will approach any not co-operating learning situation with an attitude that presumes the certain possibility of achieving a more co-operative state.

9. *“If the students work in groups, how could I assess individuals?”*

The micro-group is specifically important because it is instantly revealed – at least for the small group – when someone gets stuck in their individual task.

In co-operative learning, the teacher can observe even each individual student’s personal, social and cognitive competencies or informedness during the lesson, engaged in learning activities. There is no opportunity for this in case of frontal class-work, because the teacher is primarily engaged in conveying the “subject matter”, and can rely on feedback only from a few students.

Co-operative learning knows several ways of monitoring students individually or interpersonally. In addition, these monitoring processes are constantly recorded, in accordance with the principle of publicity. Thus individual performance also can be tracked.

Co-operative learning does not exclude traditional forms of assessment: oral presentations, random tests, progress tests, etc. However, it is an essential difference that while in the traditional framework the teacher provides feedback on individual performance by gradation – perhaps complemented with some verbal comments –, in co-operative learning individual performance will be incorporated in individual and micro-group development plans as well. That is to say, since the micro-group has assisted preparation, in the view of results it also can be analysed how efficient and inclusive this assistance has been. In the light of this analysis the teacher and the peers provide co-operative tools assisting individual learning for each participant.

10. *“This thing may work with 20 people, but how could it be applied to a class of 32?”*

The first step is to get acquainted with the children. Tools aimed at group-processing are excellent in this respect.

For example with a tree of expectations I can see their knowledge of the subject (as we may remember, these are put on the tree on fruit-shaped pieces of paper by the groups), as well as their questions, expectations and demands concerning the given topic and its processing (these are written on the flowers).

During learning together, flowers ripen into fruit, and new expectations bloom into new flowers on the expectation tree of the community learning together.

During the production of the tree of expectations and the learning activity, the condition of the most basic learning, personal and social skills can be observed very well. It means that the teacher can collect not only the demands but the recognised development needs during an activity.

In connection with the class of 32 the fear conceived is what will happen if a wrong practice is imprinted due to learning in small groups.

Within a frontal framework, when we focus on conveying the subject, we have little chance to monitor each child's understanding step by step. However, in a co-operative framework, due to the publicity of micro-group work we can easily recognise incomplete solutions and inaccurate practice.

In a class of thirty-two – out of eight groups of four which we were monitoring during their solving a mathematical problem – we only found one person with reliable knowledge. He has completed the task quickly – without the others – and now he is waiting for the others struggling with it. The situation is not really promising. There is only one person in the whole class who understands the task, and he will not talk to the others!

Now we trust this person to check his three peers' knowledge with exercises of the same kind given by him, to help them understand and practise as thoroughly as he can do it.

When two of his group understand it, we can suggest working in pairs (pair of pairs). If all four of them understand it and can explain it to each other, I pair them up individually with a member of three other groups. Thus I form new groups of four in half of the class (16 people). In these groups the members of the original group understanding the task teach their peer to solve the problem based on their own successful way, which we can continue to monitor. If we see that a group gets stuck, we ask them to send an envoy to another group, or ask for one. If all four groups can understand and explain the task, I group together half of the class in pairs; 16 who knows and 16 others.

What are the other four groups doing meanwhile? I can give them another task of revising or grounding nature. The first group that meets the challenge can transfer it to the other three, just like in the other half of the class. Thus, when the 16 pairs sit down together, they can teach even two types of tasks to each other.

All this means that 32 people have acquired two types of tasks in three controlled steps, by individually controlled learning and practice.

The fact that the first ones to complete teach the others, produces negative interdependence. Therefore – taking it further – I would give eight different types of task to the eight groups, and I would have this nice line of jigsaw started by the two groups of four that finish first. When we finish practising these two types, the practice of another two types can be started in jigsaw, etc.

After the particular steps of practising, groups can return to their own types, and the two groups the types of which we have just covered can get new tasks.

Learning and practising together increasingly contributes to the comprehension of their original tasks. Thus it will be more likely to have another two groups in the eight that can get the next jigsaw started. Finally, all eight types can be learned thoroughly during the lesson.

Introducing co-operative learning has a shocking effect on teachers. It is difficult to face the fact that what we have thought to be comprehensible, turns out to be understood only by a few children in co-operative learning. It is instantly revealed that the students having been considered able to learn individually do not even understand the task and cannot start solving the problem. That is, it becomes clear as early as in the first step if we have not assessed something correctly.

11. "I have tried to apply co-operative structure, but the children did not co-operate, moreover, they did not even progress to solving a problem, although they already have covered that subject. Maybe this thing does not work in my class?"

The dedicated teacher who turned to me with the above problem, also told me that she trusted the children's abilities and did not assign any roles to them within the groups; she believed in spontaneous co-operation. They wanted to practice a subject (mathematical operations with algebraic fractions in the secondary school) she previously had taught frontally. She found out that the eight group only was able to solve one of the eight types of tasks! That means that the frontal way was not suitable for the students to acquire autonomous knowledge on the subject. While

when traditional ways of education (teacher's frontal lecture on operations with algebraic fractions) were applied not knowing did not even surface, in co-operative learning, not understanding and not being able to solve the mathematical problem was revealed instantly, and there was no chance to go on until they were resolved.

It is also hard to face the fact that however good lecturers we are, we cannot be sure that each of our listeners are engaged the subject so much that they are able to learn and practise autonomously. In co-operative systems, we can get acquainted with students according to their real abilities and skills.

In frontal situations students' abilities are revealed only to the extent the teacher wishes it. If the teacher does not check on them, she can go on with the subject feeling reassured. However, in co-operative situations involving micro-groups we can observe actual responses to actual problems. This provides us with the opportunity to acknowledge the participants' emotions, attitudes and needs having been revealed this way, and structure further steps in response to these.

When I found out in a group of children aged about 12 that they found studying literature absolutely unnecessary, and they were not even willing to do it, I – as I mentioned earlier –, on the one hand, started thinking about what I could bring up as an evidence for the necessity of dealing with poems in an experiential way. On the other hand, I also asked them what they would have found interesting. Many things surfaced (boys, girls, love, friendship, money, career, sin, justice, etc.), so it was not difficult to choose literary topics in which I could show them some fascinating pieces. Besides Endre Ady's poems, Villon, Apuleius, they were incited the most by The Little Prince, Winnie the Pooh, Leatherstocking Tales, a Hungarian ballad and avant-garde poetic techniques (free verse, collage), haiku and prosodic poetry, as well as Saussure's, Pierce's and Wittgenstein's approaches on linguistic philosophy and semiotics.

One of the most excellent points in co-operative learning is that we can track individual progress step by step; we can see which individual skills and knowledge could be develop by what kind of co-operative tasks.

If we recognise that the students' skills are from what we have thought or what they have pretended, we need to get back to fundamental co-operative principles, roles, teacher's attitudes and structures.

Developing co-operative and learning competencies is an essential condition of co-operative learning. Learning together does not presume that everybody is able to co-operate, it only provides an opportunity for everyone to co-operate! Supported by clear principles of co-operation, it releases participants' creativity, because it only sets the frames of co-operation in a palpable way.

It introduces learning structures and behaviour models through co-operative roles that guide participants towards autonomous and co-operative learning.

These skills cannot develop without practising teachers' attitudes supporting the fundamental principles. Initially, let us accept that our knowledge is collective; let us believe that everyone is able to thematize their own problems and achieve autonomy in resolving them, especially if they get co-operative help. For the realisation of these attitudes we recommend Rogers' and Gordon's books.

Pedagogical practice structured with the help of fundamental co-operative principles actually leads to the development, clarification and maturity of co-operative attitudes, for teachers and participants alike.

In the above mentioned example of a fellow teacher – operations with algebraic fractions – we have to accept that we “progressed in the subject” at the blackboard to no avail; students lagged behind. That is, we were not really effective in frontal work!

However, there was an exercise one of the groups was able to complete. Then, building on it – constructive interdependence! – we can structure the jigsaw on them. Meanwhile the others will reprocess the deductions of their textbook. Thus practising the exercise taught by one group and processing the textbook material brought by the other part of the class will meet when one half of

the class help the other, even in pairs. One of them explains the solution of the problem, the other one the deduction in the textbook.

This jigsaw also provides an example for solving further types of problems – also comparing them to the course book.

When all the groups have practised the first exercise – completed by the first group and compared to the textbook – problem solving can go on. Each group is given a different type of exercise in operations with algebraic fractions, with reference to the corresponding sections of the textbook. The group that can solve the problem first will start the jigsaw.

Besides fundamental principles, behaviour models and attitudes, in the fourth dimension of development we will have to make a practical plan that keeps the common needs and demands outlined in the former three areas in view. It means that if we see that our students – e.g. in secondary school – are not able and willing to co-operate, we will obviously have to step back.

We need to find frameworks which facilitate co-operation even more. The first step of introducing co-operative learning is the consciously designed formation and development of groups. At this point we need to reduce our academic goals for a while so that we can mature micro-groups to co-operative ones, and only then we can restart learning activities, but now in a higher gear.

12. *“So now we have to learn yet another method again? We already have got acquainted with drama pedagogy, project education, text-based evaluation, individual development planning and competency-based development!”*

Co-operative learning is not another method, rather a framework for the application of various educational methods, techniques and competency development tools. A new paradigm of structuring learning, that fundamentally directs attention to the structures of organising learning, and lines up feasible co-operative structures along the fundamental principles.

In case of co-operative learning, the emphasis on structuring learning from a methodological aspect. The teacher approaches learning and techniques or methods to be applied with attitudes and lesson structuring ways that comply with the co-operative principles.

Therefore the new methodological elements, techniques and pedagogical approaches having emerged in educational reforms during the last fifteen-twenty years all can be structures within the co-operative framework as well.

Drama pedagogy also knows some co-operative and small-group tools. There are no barriers for the dramatic situations to be processed and performed by micro-groups of 2-6. They can produce variations on a given situation, or elaborate on several situations subsequently. The point is to check whether the co-operative principles have been manifest in our practice of drama pedagogy so far. If not, what drama pedagogical tools can we use to achieve them simultaneously?

Competency-based development is there among the basic principles of co-operative learning, thus our knowledge in this field and our learning development techniques can be structured in compliance with them as well.

Child-centred educational approaches based on the autonomy and competent personality of the student (Waldorf, Freinet, Montessori education, etc.) acknowledge co-operative learning as their efficient tool that structures learning together with view to each child's development needs and demands, involving them in learning together and providing them with increasing autonomy.

Complex Hungarian programmes (such as the Comprehensive School or the humanistic Co-operative Learning programme), as well as international inventions established in Hungary (Complex Instruction Program, Step by step Education Program) already have integrated the inventions of co-operative learning in their systems.

Text-based evaluation as a form of authentic feedback also complies with the principles of publicity and competency development in co-operative educational systems. In addition, co-operative practice provides handy tools of evaluation. At the same time, we also can use numeric categories (marks, percentages) for assessment and evaluation; the stress is on the fact that criteria need to be clear for participants as well.

In co-operative learning, we often speak of individualisation. Pedagogical processes including each participants and based on individual development plans serve as the basis of structuring learning. Therefore successful models of individual development plans, knowledge, experience and teaching skills in this field can help in extending the means of individual development plans to each student in practice with the help of co-operative learning.

We even can structure our development tools used in traditional frontal education in micro-groups. Competition exercises in mathematics, that have been distributed frontally, can be given to student quartets as well. I can have a small group interpret the deduction of a theorem as well. Thus most participant really will use their brains to solve the problems which are aimed at making them think, not only the few ones who have volunteered so far.

It is clear that co-operative learning provides a way of structuring various efficient and effective methodological elements. It is not a new method but a new framework in which priorly known and new pedagogical, educational and learning development methods and techniques can be structured successfully, with the participation of every single student.

13. "I form new groups in every lesson. Sometimes my class just falls apart, and the children are less and less motivated. What might be the problem?"

Random group formation or creating new groups each time only can be successful when we do it in an already co-operating large group. When introducing co-operative learning, it is expedient to form groups that are heterogeneous in every respect (ways of learning, different levels of development of various skills, sex, but along sociometric relations), to which we string threads of affection based on sociometry, as cohesive forces.

"If there is at least one person in the group I like, I feel more like taking part in the group-work."

Children have to learn to co-operate and to recognise their own roles in co-operation the same way as they have to learn to read and write. Therefore, initially, the teacher will be engaged in the development of consciously formed groups, and he or she must focus on it. As long as children do not have shared experiences, do not know each other well enough, do not recognise co-operative principles with the help of co-operative activities developing community and helping to get acquainted with each other, but with no stake, and as long as they do not start apply them consciously, the teacher has the leading role in structuring their work, in maturing the groups into teams.

If a child is put to another group every time, lesson by lesson, there will be no supporting small group built around him, in which continuous micro-group publicity and reflection are among the most important elements of development.

If I always have to work in different groups, I am not urged to develop, since the system of responsibility and accountability is much looser than in permanent groups. I always can tell my new pairs that I have a headache, and they will do everything instead of me, while in a permanent group they will request a check-up or protest against my simulating.

Children should start with activities in pairs or trios, in which the personal space is more direct than in groups of 5-6. In pair-work there certainly is one person they have to address. They will be able to face their own needs, demands and expectations really efficiently in this personal space, and the same way, they will be able to perceive, know and understand their peers more accurately.

These micro-communities provide an inclusive framework for developing personal and social competencies, i.e. the small, co-operative micro-groups are able to accept participants with their whole personalities, but it is also a development process. If the children have success in their first micro-groups together, they have been able to progress in co-operation, only then we can form new groups and keep children together in them until the first few successes again. During the stages of maturing children acquire a number of real co-operative skills, and, in our experience, within 1.5-2 years they can work efficiently and effectively in any kind of distribution.

Let us start with small groups of 2-4, formed in a controlled way, which have matured into a small community and have been kept together until the first few successes. Then let us restructure them in a controlled way – when they are able to work smoothly together – to other groups, forming these consciously again. After a few such development periods groups can be formed spontaneously or randomly as well.

The essence of co-operative learning is that while participants realise that it is much better to work together and they can make bigger progress this way, they also recognise that they are free to express their interests and feelings related to the subject, as well as their expectations and ideas. They understand that one of the most important purposes of co-operation is to help everyone in achieving their individual goals. That is, they recognise how to use co-operation for their own purposes during experiencing co-operation. At this point it will not be a question any longer if they are interested in working together...

The co-operative way of maintaining motivation is involving the interests of the participants in planning learning. Of course, the level of interest may be uninterest – then our goal is to incite it. In co-operative learning it is instantly revealed if it has been successful. If not, we have to widen our horizon of our subject so that we can make it attractive for everyday interests as well.

14. “Co-operative learning can be a form of non-subject-based education, but these two are not the same, or are they?”

Non-subject based education is an educational political term for us, which is intended to express that now is the time for a change in upper elementary educational methods, educators’ attitudes, and in the comprehension of the processes of learning. Fortunately, there can be experienced a continuous renewal in everyday educational practices in Hungary, the pioneers of which are nursery schools and lower elementary teachers. These changes already have some real results in childrens1 performance, which is also justified by international surveys. The expressions ‘non-subject based’ and ‘lower elementary teaching methods’ in ministerial guidelines are not methodological terms, but temporary terms of educational policies that can be easily interpreted in pedagogical discourses. Non-subject based education means that the focus shifts from school, subjects to student s and process of learning. The goal is to enable them to develop their competencies in the given academic fields.

During the last twenty years several methodological innovations have been born or been adopted in Hungary by nursery school and lower elementary teachers, and a number of them have incorporated the frameworks of co-operative learning (Humanistic Co-operative Learning, Step by Step Program, Rogers), while other programmes (Freinet, Montessori, Waldorf) or approaches (project pedagogy, drama pedagogy) are able adapt the fundamental principles and tools of co-operative learning successfully.

Co-operative learning provides an excellent framework for non-subject based education. It maintains freedom of methodology, that is, it is efficient and effective for any methodology facilitating non-subject based development, and at the same time, it is equitable – it provides an inclusive framework.

Co-operative learning can work well in any time structure – lessons, project days, project weeks, day care, forest school weeks, class trips. Whatever form non-subject based education takes in a particular institution, co-operative structures can be applied.

Co-operative learning is able to differentiate to a higher degree than techniques differentiating at the group level (e.g. “talent groups” or “select groups”), since it is capable of following authentic development plans at the level of the individual, which are in accordance with the participants’ needs, demands, expectations, desires, career plans, ideas and undertakings.

It is more efficient not only because it is inclusive but because its heterogeneous micro-group structure does not separate the human resources of the class or the grade from each other, but joins them personally in micro-groups of 2-4; thus evenly distributing the human resource within the large-group and connecting them with a high number of synapses.

15. *“It is unclear from me how I can make individualised plans in co-operative learning. How can I help those who progressed ahead and those who lag behind?”*

For teachers having got used to practices traditionally called frontal class-work, it is unimaginable how they could teach individually, making individual development plans. Especially in a class of thirty students.

It is maybe one of the most important bases of differentiation at the individual level, which we simply called individualisation, to get acquainted with participants' needs, desires, career plans, demands and interests. Of course, a wide range of observation tools need to be utilised for that. Besides placements tests and oral reports spontaneous observation is necessary in the middle of learning, argumentation, interpersonal and communicational activities. All these are impossible to carry out with thirty people in case of a frontal class. When teachers working with the same class get together and share their observations and their resulting ideas about each individual student, it also helps their horizons of observation.

As a result of the principle of co-operative publicity, co-operative micro-groups and the individuals within can be observed in learning, interpersonal and personal situations, both spontaneously or in a planned way. Thus we can see exactly what competencies they have in particular fields. There is an opportunity to track even only one child through all learning activities without disturbing. Or we may monitor only one skill during a lesson, by spontaneously observing the whole large group while micro-groups work on their tasks. As we already have mentioned, what might be shocking is the fact that the participants' personal, social and learning behaviour forms are revealed instantly, together with their actual abilities, knowledge and approaches. Even if teachers used co-operative learning for nothing else than observe children's competencies more thoroughly, their developments could be more well-grounded, since they would involve a much wider range of observation tools than the usual ones. We hope that it can turn educators to a deeper, more understanding and more accepting approach.

At the same time, we have already discussed in the chapters on basic principles and structures that co-operative structures and roles themselves make a significant contribution to individualisation in the class.

In a student quartet the person who “brings” the solution into the group can find an outlet to express himself; he does not even have to put up his hand, and he does not simply need to say the results, but he is the one who teaches his solution to the others, thus he can improve his (social and learning) competencies spontaneously. The others also will develop at the same time by way of this teaching and learning. They learn how to ask questions, word their ideas and articulate their understanding when it is their turn in the quartet. Since a task can be regarded as finished when everybody understands the solution and is able to apply it on their own, even those will develop in spontaneous individualisation who are the furthest from a particular field.

However, individualisation ensured with the help of structures and roles only develops spontaneously during its functioning. If it is not the case, the planned process has to be adjusted, intervention is needed for the immediate development of social competencies.

7.2. A collection of the co-operative structures in the handbook

A sequence of steps concerning the collection of structures

Teachers attending our training have indicated that they would like to take some particular methodological examples with them as well, since we have seen it appear on the “flowers” of several micro-groups on the expectation trees of teacher training sessions.

So besides group-formation and group-processing, co-operative principles and roles, competency-based development, the experience and reflective analysis of co-operative structures from the aspects of participants/structurers and designing their own co-operative structures, we also incorporated a sequence of steps ingraining co-operative structures in the thematics of our training. Its goal is to ingrain actual and particular co-operative structures in the memories of the participants, besides experiences and reinforced attitudes. If they take home only 10-12 from the 20 introduced, experienced and applied structures off this book, they can construct complex lessons from them, or they can try them one by one, in 15-20 minutes.

The sequence of steps presented at the end of the collection and serving the purpose of ingraining can be applied – for example in a school staff or at a co-operative workshop – when there is explicit demand for getting acquainted with more co-operative structures. It is no way a sequence for beginners. Besides being demanded, it is only useful to apply it when a group is already able to work co-operatively, that is, when it has had experienced successes in co-operative learning, co-operative structures, is aware of the significance of co-operative principles and is able to analyse co-operative structures on the basis of these principles. Therefore we inserted this sequence at the point at which the groups have achieved the above during training.

Of course, this sequence can be done in itself e.g. in a teaching staff, but obstacles are expected if the staff in need of community development. The depth of ingraining is not guaranteed either, since we cannot link it to anything consciously if we perform this variation on pair of pairs in itself. However, carrying out the sequence is granted, and participants can get acquainted with several co-operative structures. If you wish to try this sequence in the staff as an autonomous activity, plan with a longer interval for each step, and provide sources for the participants – e.g. this handbook (only one copy of a source for each pair; it is important from the aspect of constructive interdependence so that they will need to share them or use them together).

The second part of the appendix contains cuttable flashcards which include all the co-operative structures mentioned in the handbook. We recommend these for the sequence aimed at ingraining.

Practising the analysis of principles

The collection also can be used for individual learning. The reader, by analysing each co-operative structure on the basis of the fundamental principles, can acquire an analytical approach that allows for structuring individually constructed structures in class with manifesting the principles.

At the beginning, and it is common among more experienced co-operative teachers as well, we often do not pay attention to the basic principles, just keep stumbling between traditional group-work, differentiated education and co-operative structures in turns, sometimes applying different approaches unconsciously. In this case we meet failures sooner or later, as it was proved by both Hungarian and international research as early as in the eighties. Checking for co-operative principles is the most important at this point! If one of them is not present, that will be the first one we need to integrate in micro-groups' and large groups' learning together. Thus we allow the resources of the students to be released – within the real co-operative frames this time – and they can solve their problems and develop themselves more and more autonomously, following their self-actualising tendencies.

Adjusting basic principles usually works, regardless of the fact if the teacher inserting the missing principles believes in its significance, since spontaneous individualisation, proven by decades of research, facilitates the solution of the problem instantly. The manifestation of the principles grants co-operation. So then we only need to refine them, and the results will come. This is the point that can be surprising initially; that we left out something we did not attributed significance to, however, we later insert it and it turns out to fire up the machine...

This structure-list also can be used to practise analysis on the basis of co-operative principles, examining the presence of fundamental co-operative principles in each co-operative structure

presented above. In the description of some structures sometimes we used Kagan's terms²⁸, however, we had to recreate the descriptions of these before the Kaganian definitions were not unambiguous sometimes; but we basically use our own terms and definitions here. For more detailed descriptions and versions of some structures, see the handbook!

Co-operative structures

Card-sized pieces of paper with some information written on both sides – these are flashcards. For example: term – definition; multiplication – product; Hungarian word – English word; picture – word; year – historical event, etc. The cards can be made either by the teacher or by the students. It can be a tool of processing new topics, or revising and checking on old ones.

Task assignment

Every micro-group chooses or is given a topic. (It can be the same, or different for each one.) The groups make up questions in connection with the topic, and write them down. Each group passes the written questions to the adjacent one, and they also receive a set of questions. The group answers the questions they received together, and write their answers below the questions. Then they give the sheet back to the sender for checking and assessment. Task assignment also can be done within the micro-group.

1 goes, 3 stay

The groups either work on the same topic, or on different ones. When they are ready they send one of their peers to another group to check what outcome they have. Meanwhile the members staying at their place also receive a visitor from another group. After sharing their information, everyone goes back to their own groups and tell them what they have seen. If there are several rounds, each time a different person goes to a different group.

3 go, 1 stays

The groups either work on the same topic, or on different ones. When they are ready, one member stays at the desk, while the others go to different groups to see what outcome they have. Meanwhile, the member staying at their desk also receives visitors from other groups. After sharing their information, everyone goes back to their own groups and tell them what they have seen. If there are several rounds, each time a different person stays at the desk.

Inside-outside circle

The large group forms two concentric circles with the same number. Students standing in the inner circle face their peers in the outside one, so that everybody is facing someone. “Insiders” ask a question, “outsiders” answer it. Insiders confirm the answer or make their peers correct them by further questions. Finally they congratulate them. Now outsiders take one step to the left, and are asked another question by their new peer, and answer it. They keep going until they get back to their original partners. Now they swap places, those who have asked now answer and vice versa, and a new round begins.

Group jigsaw

Group members work on different segments of the same topic individually. Individual segments are adjusted to the skills and attainment of particular students, that is, they are differentiated. Group

²⁸ KAGAN, Spencer – KAGAN, Miguel (2009): *Kagan Cooperative Learning*. San Clemente: Kagan Publishing.

members share their individually elaborated segments with the others. The teacher always checks on the whole topic.

Student quartet

The teacher assigns a task to the group. (It may be very short or complex as well.) The group works together on the task, then they check if their solution can be explained by each member. The teacher asks questions about their solution, asking each groups, but picking individual members randomly. The work of the group is assessed on the basis of the reply of the answering member.

Paired interview

Pairs ask each other about a particular topic, and take notes of the answers. (First one asks and takes notes, the other answers, then they swap.) Then each pair finds another pair (if they work in micro-groups of four, the other half of their group) and by changing pairs, they tell their new partner what they have heard from the previous one. The new pair can add their own knowledge to the original answers. Now the two pairs turn to each other and sum up the interviews and amendments together.

Checking in pairs

Students make pairs. One of them works on the task, while the other observes his or her work and helps with questions, if necessary. When the task is completed, the tracking partner praises the other, and they swap roles. The difficulty of the tasks and the difference between them depends on how experienced the pairs are in solving them.

Round Robin

First, individual work (collecting items, wording opinions, solving a problem, etc.) takes place in a particular topic – possibly in writing. Then the members of the group take turns to present one item of their individual work (collection, opinion, solution, etc.), and the others indicate if they have the same item. They continue until everyone finishes.

Group round Robin

Groups take turns in presenting their work, one item at a time. The other groups check if they have the same item, and if yes, they indicate this fact to the student/teacher co-ordinating Group Round Robin. They keep taking turns until each items are presented.

Roundtable

Everyone has their share in making a note together within a micro-group. For example they write down the key sentences summarising a topic, one by one; or they collect items individually (possibly in writing). Then the members take turns in presenting an item of their individual collection. Meanwhile one member – the one presenting, but it is even better if the one sitting on his/her left or opposite him/her – writes down the item on a sheet of paper they share. They go around presenting and writing until each item is presented.

Written Round Robin

Several pieces of written material go around the groups; each groups receives one at the same time. It can be presented by the person having worked on it, or it can be interpreted and complemented by the whole group, without any help. Written notes go around until they all are received by every group and they go back to their makers, with feedback from the others.

Expert jigsaw

We choose as many topic segments as the number of member of micro-groups. The large group is rearranged, those are put in a group who work on the same topic; these are the expert groups. They discuss their topics, amend deficiencies with questions, summarise and learn their particular segment. They use it for preparing for going back to their original micro-groups and teaching them the topics they have become “experts” of in the group processing the same topic.

Collection by pieces of paper on a round chart

The groups collect information on a particular topic on small pieces of paper. Each member writes the same amount of pieces. The pieces will contain the collective opinion of the group, only writing is performed individually. Each member has their pieces (or the ones they received from their peers) in front of them. Groups put the pieces on a round chart (a big circle divided into segments) put out for the whole large group. They put on their pieces at the same time, therefore it is expedient to make them large and legible from a distance.

Paper and scissors

The small group cuts out pieces of paper and shapes for the members for the purpose of various tasks, as the teacher instructs them. Each micro-group – regardless of their size – is given only one coloured sheet of paper (a different colour for each group), and only one pair of scissors. Their task is to cut the sheet into as many pieces as many people there are in the group, but the one who has the scissors cannot touch the sheet. The other members, however, have to move (fold, hold to the scissors, etc.) the paper together, and they cannot let it go.

Window

Window is a co-operative tool of collection in writing, which consists of a shared part in the middle, and smaller sections around this. The topic and the name of the group go in the middle. The number of the surrounding equals to the number of group members, and they are numbered from 1 (in a group of four, four window segments surround the middle, numbered 1-4). The items are written in them on the account of how many people have collected the same, regardless of the fact whether the item is correct or not.

Moving Round Robin

Groups make some large-sized written or illustrated product. They put the products on the wall, more or less at even distances. The students from groups; each group needs to include, if possible, at least one of the makers of every product. The groups go around the products, and the one who has participated in its production, talks about it. The others can ask questions and take notes.

Group Round Robin with notes

Micro-groups present their solutions on pieces of paper; each member has at least one piece containing some significant information. Groups take turns speaking. One member of the group – another one in each round – presents a piece and stick it on the class placard. The note (a key sentence, a date, a name, a notion, etc.) must be large enough to be legible from a distance. More detailed information can be found on the back of the paper (argumentation for the key sentence, event for the date, definition of the notion, etc.). Groups take turns until everyone has stuck their notes.

References

- ARATÓ, F. (2013): Towards a Complex Model of Cooperative Learning. *Da Investigação às Práticas*, 3(1), 57-79.
- ARATÓ, Ferenc (2014): On Decontruction of Education. In *Hungarian Educational Research Journal* 4(4)
- ARONSON, Elliot (2007): *The Social Animal*. (Tenth, revised edition) New York: Worth Publishers.
- ARONSON, E., Blaney, N., Stephan, C., Sikes, J. & Snapp, M. (1978) *The jigsaw classroom*. Beverly Hills: Sage Publications
- BENDA, József (2002): A kooperatív pedagógia szocializációs sikerei és lehetőségei Magyarországon. *Új Pedagógiai Szemle*, 2002/9. 26–37., 2002/10. 21–30.
- COHEN, Elisabeth G. – LOTAN, Rachel A. (1994): *Working for Equity in Heterogeneous Classrooms, Teachers*. New York – London: College Columbia University.
- DEUTSCH, Morton (1949) A Theory of Cooperation and Competition, *Human relation*, 2. 129-152. oldal
- DEUTSCH, Morton (1962) Cooperation and Trust: Some Theoretical Notes in Jones, M. R. szerk *Nebraska symposion on motivation*. Lincoln: University of Nebraska Press, 275-319. oldal
- DEUTSCH, Morton (2006) Cooperation and competition in Deutsch, Morton – Coleman, Péter T. – Marcus, Eric C. (2006) *The handbook of conflict resolution – Theory and practice*. San Francisco: Jossey – Bass
- GORDON, Thomas (1989): *Teaching children self-discipline*. Crown Publishing Group, New York.
- JOHNSON, Roger T. – JOHNSON, David W (1989): *Cooperation and Competition: Theory and Practice*. Edina: Interaction Book Company.
- JOHNSON, Roger T. – JOHNSON, David W. (1999): *Learning Together and Alone*. Allyn and Bacon, Massachusetts.
- JOHNSON, D. W. - JOHNSON, R. T. (2009): An educational psychology success story: Social interdependence theory and cooperative learning. Downloaded from <http://er.aera.net> on July 14, 2015
- JOHNSON, D.W., JOHNSON, R.T., HOLUBEC, E. J. (1984): *Circles of learning*. Alexandria: Assosiation for Supervision and Curriculum Development
- JOHNSON, D.W., JOHNSON, R.T., HOLUBEC, E. J. (1994) *The New Circles of Learning*. Alexandria: Assosiation for Supervision and Curriculum Development
- JOHNSON, David W., JOHNSON, Roger T., STANNE, Mary Beth (2000): *Cooperative Learning Methods: A Meta-Analysis*. Minnesota: University of Minnesota.
- JOHNSON, D., MARUYAMA, G., JOHNSON, R., NELSON, D, SKON L.. (1981): Effects of Cooperative, Competitive, and Individualistic Goal Structures on R Achievement: A Meta-Analysis. *Psychological Bulletin*, 1981, 89(1): 47–62.
- KAGAN, Spencer (1990): The Structural Approahces to Cooperative Learning. *Edutcation Leadership*, 1989. december-1990. január 12-15.
- KAGAN, Spencer – KAGAN, Miguel (2009): *Kagan Cooperative Learning*. San Clemente: Kagan Publishing.
- ROGERS, C. (1995): *On becaming a Person (A Therapist's View of Psychotherapy)*. 2nd ed. Boston, New-York: Houghton Mifflin Company
- ROSENBERG, Marshall B. (2003): *Nonviolent Communication: A Language of Life*. PuddleDancer Press, Encinitas.
- SLAVIN, Robert E. (1995) *Cooperative learning theory, research, and practice*. Allyn and Bacon, Boston.